



WAVERLEY TRAFFIC COMMITTEE MEETING

A meeting of the WAVERLEY TRAFFIC COMMITTEE will be held by video conference at:

10.00 AM, THURSDAY 28 OCTOBER 2021

Waverley Council
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Bondi Junction NSW 1355
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AGENDA

Apologies

Declarations of Interests

Adoption of Previous Minutes by Council - 23 September 2021 7

The recommendations contained in Part 1 – Matters Proposing that Council Exercise its Delegated Functions – of the minutes of the Waverley Traffic Committee meeting held on 23 September 2021 are scheduled to be adopted by Council at its meeting on 26 October 2021.

PART 1 – MATTERS PROPOSING THAT COUNCIL EXERCISE ITS DELEGATED FUNCTIONS

NOTE: *The matters listed under this part of the agenda propose that Council either does or does not exercise the traffic related functions delegated to it by TfNSW. The recommendations made by the Committee under this part of the agenda will be submitted to Council for adoption.*

TC/C STATE ELECTORATE OF COOGEE

TC/C.01/21.10 39-43 Waverley Street, Bondi Junction - 'No Parking' Zone - Removal (A14/0145) 18

COUNCIL OFFICER'S PROPOSAL:

That Council replaces the 12.3 metre 'No Parking' zone outside 39–43 Waverley Street, Bondi Junction, with a '1/2P Meter Registration 8 am–9 pm Permit Holders Excepted Area 22' restriction.

TC/C.02/21.10 Scott Street and Marroo Street Intersection, Bronte - 'No Stopping' Zone (A14/0145) 20

COUNCIL OFFICER'S PROPOSAL:

That Council installs a 10 metre 'No Stopping' zone on the southern and northern side of Scott Street, Bronte, at the intersection of Marroo Street.

TC/V STATE ELECTORATE OF VAUCLUSE**TC/V.01/21.10 Blake Street, Dover Heights - Traffic Calming (A03/0042-04) 23****COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs two sets of rubber speed cushions in Blake Street, Dover Heights, for a 12-month trial, as shown in Figure 2 of the report.
2. Installs a 10 metre 'BB' line at the intersection of Blake Street and Old South Head Road, as shown in Figure 3 of the report.
3. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes.

TC/V.02/21.10 45-47 Ramsgate Avenue, Bondi Beach - Temporary Road Closure for Panel Lift (SF21/4719)..... 33**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Approves the temporary road and footpath closure of Ramsgate Avenue, Bondi Beach, between Campbell Parade and Wairoa Avenue, over two consecutive Sundays on dates to be agreed with Council, to facilitate the installation of structural panels, in accordance with the Traffic Guidance Scheme attached to the report and subject to the applicant:
 - (a) Notifying NSW Police and obtaining relevant approvals.
 - (b) Notifying NSW Ambulance Service and NSW Fire and Rescue.
 - (c) Notifying affected residents at least five working days prior to the event, with a follow-up notification on the day prior to day one of the road closure.
 - (e) Liaising with the residents of 66, 68, and 70A Ramsgate Avenue, whose driveways will be blocked for a short period of time (up to 20 minutes) during each lift.
 - (f) Using traffic controllers accredited by Transport for NSW.
 - (h) Covering all costs associated with closing the road, including traffic control and permit fees.
2. Removes parking spaces from 4 pm on the Saturday before the closure occurs.
3. Delegates authority to the Executive Manager, Infrastructure Services, to approve the dates that the operation will occur and to extend the dates, if required.

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| TC/V.03/21.10 | Blair Street and Glenayr Lane Intersection, Bondi Beach - 'No Stopping' Zone (A14/0145) | 38 |
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COUNCIL OFFICER'S PROPOSAL:

That Council installs a 'No Stopping (Right)' zone on the eastern corner of the intersection of Blair Street and Glenayr Lane, Bondi Beach, as shown in Figure 2 of the report.

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| TC/V.04/21.10 | 47 Beach Road, Bondi Beach - Construction Zone (A03/2514-04) | 41 |
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COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 10 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone along the frontage of 47 Beach Road, Bondi Beach.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

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| TC/V.05/21.10 | 59 Wallangra Road, Dover Heights - Construction Zone (A03/2514-04) | 45 |
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COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 15 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone along the frontage of 59 Wallangra Road, Dover Heights.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

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| TC/V.06/21.10 | 157-159 Military Road, Dover Heights - Construction Zone in Blake Street (A03/2514-04) | 49 |
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COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs an 11 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone in Blake Street along the northern side of 157–159 Military Road, Dover Heights.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.

3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

TC/V.07/21.10 12 Burge Street, Vacluse - Construction Zone (A03/2514-04) 53

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 20 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction along the frontage of 12 Burge Street, Vacluse.
2. Notifies businesses in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

**TC/V.08/21.10 CONFIDENTIAL REPORT - Notts Avenue Streetscape Upgrade - Pedestrian Safety
Improvements (SF21/5051) ISSUED SEPARATELY**

TC/CV ELECTORATES OF COOGEE AND VAUCLUSE

Nil.

PART 2 – TRAFFIC ENGINEERING ADVICE

NOTE: *The matters listed under this part of the agenda seek the advice of the WTC only and do not propose that Council exercise its delegated functions at this point in time (though they may or may not require it in the future).*

TC/TEAC STATE ELECTORATE OF COOGEE

Nil.

TC/TEAV STATE ELECTORATE OF VAUCLUSE

TC/TEAV.01/21.10 Mitchell Street, North Bondi - Pick-up/Drop-off Zones for Reddam House School (DA-213/2021)..... 57

COUNCIL OFFICER'S PROPOSAL:

That:

1. Should DA-213/2021 be approved for the expansion of Reddam House School onto adjoining land at 60C Blair Street, North Bondi:
 - (a) Installation of a 22 metre pick-up/drop-off zone on the western side of Mitchell Street, north of the existing 'No Parking, Wedding or Funeral Vehicles Excepted' zone, before and after school hours is acceptable.
 - (b) The zone would be signposted as 'No Parking 8 am–9.30 am, 2.30 pm–4 pm, School Days', with parking to be unrestricted outside these hours.
 - (c) The 22 metre pick-up/drop-off zone and the 'No Parking, Wedding or Funeral Vehicles Excepted' zone would include 'Kiss and Ride Area' signage, noting that Kiss and Ride signs are not a 'prescribed traffic control device' and may be installed by Council on the network it manages without seeking Traffic Committee or written approval from Transport for NSW.
2. Changes to the parking restrictions in the vicinity of the site will be subject to a separate report to the Traffic Committee should the development be approved, and the proposal will be assessed on its merits at that time.

TC/TEACV ELECTORATES OF COOGEE AND VAUCLUSE

Nil.

**MINUTES OF THE WAVERLEY TRAFFIC COMMITTEE
MEETING HELD BY VIDEO CONFERENCE ON
THURSDAY, 23 SEPTEMBER 2021**



Voting Members Present:

| | |
|-------------------|---|
| Cr P Masselos | Waverley Council – Chair |
| Mr R Autar | Transport for NSW – Traffic Engineering Officer |
| Snr Cst D Cameron | NSW Police – Eastern Suburbs Police Area Command – Traffic Services |
| Mr P Pearce | Representing Marjorie O’Neill, MP, Member for Coogee |
| Ms J Zin | Representing Gabrielle Upton, MP, Member for Vaucluse |

Also Present:

| | |
|----------------|---|
| Mr B Gidiess | State Transit – Traffic and Services Manager (Eastern Region) |
| Cr T Kay | Waverley Council – Alternate Chair |
| Mr D Joannides | Waverley Council – Executive Manager, Infrastructure Services |
| Mr C Hutcheson | Waverley Council – Service Manager, Traffic and Transport |
| Mr C Yabuka | Waverley Council – Manager, Strategic Transport |
| Mr C Eccles | Waverley Council – Project Manager, Civil Infrastructure |
| Mr M Almuhanha | Waverley Council – Senior Traffic Engineer |
| Mr H Bahari | Waverley Council – Professional Engineer |
| Mr P Cai | Waverley Council – Traffic Engineer |

At the commencement of proceedings at 10.03 am, those present were as listed above, with the exception of Ms J Zin who arrived at 10.06 am.

At 10.37 am, Mr P Pearce left the meeting and did not return.

Apologies

There were no apologies.

Declarations of Pecuniary and Non-Pecuniary Interests

The Chair called for declarations of interest and none were received.

Adoption of Previous Minutes by Council - 26 August 2021

The recommendations contained in Part 1 – Matters Proposing that Council Exercise its Delegated Functions – of the minutes of the Waverley Traffic Committee meeting held on 26 August 2021 were adopted by Council at its meeting on 23 September 2021 with the following changes:

1. TC/C.01/21.08 – Grafton Street, Bondi Junction – Bicycle Shared Path.

Council adopted the recommendation of the Traffic Committee subject to it being amended to read as follows:

That Council:

1. Installs shared path signage and blue shared path lines with associated text and symbols to the edge of footpath on the northern side of Grafton Street between Adelaide Street and the proposed commuter bicycle cage within Transport for NSW land beneath Syd Einfeld Drive on the western side of Grosvenor Street, Bondi Junction.
2. Reinstates shared path signage and installs blue shared path lines with associated text and symbols to the existing shared path beside Syd Einfeld Drive between Oxford Street and Adelaide Street.
3. Provides a kerb ramp to the north-eastern side of the roundabout at the intersection of Adelaide Street and Grafton Street to facilitate on-road bicycle riders to access the existing shared path.
4. Installs cyclist dismount signs at the zebra crossing at the north side of the roundabout at the intersection of Adelaide Street and Grafton Street.
5. Refers the proposal of changing the existing pedestrian-only lantern lens covers to combined pedestrian and bicycle lantern lens covers at the intersections of Grafton Street/Grosvenor Street to Transport for NSW for assessment.
6. Installs a cyclist dismount sign at the termination of the shared pathway north of Oxford Street.
7. Officers investigate improving the safety of the zebra crossing to the north of the roundabout at the intersection of Adelaide Street and Grafton Street, including consideration of a raised crossing and additional lighting, with a report to be prepared for the Traffic Committee.

2. TC/V.01/21.08 – 8 Consett Avenue, Bondi Beach – Partial Road Closure for Structural Panel Lift.

Council adopted the recommendation of the Traffic Committee subject to it being amended to read as follows:

That Council:

1. Approves the temporary partial road and footpath closure of Consett Avenue, Bondi Beach, between Lamrock Avenue and Hall Street, over four consecutive weekdays on dates to be agreed with Council, in accordance with the Traffic Guidance Scheme attached to the report, subject to the applicant:
 - (a) Notifying NSW Police and obtaining relevant approvals.

- (b) Notifying NSW Ambulance Service and NSW Fire and Rescue.
 - (c) Notifying affected residents and businesses at least five working days prior to the event, with a follow-up notification on the day prior to day one of the partial road closure.
 - (d) Obtaining written concurrence from owners of properties that the crane will operate over, subject to the approval of the Executive Manager, Infrastructure Services.
 - (e) Obtaining written concurrence from affected property owners/residents for blocking driveway access and ensuring access to those properties during the temporary closure, subject to the approval of the Executive Manager, Infrastructure Services.
 - (f) Using traffic controllers accredited by Transport for NSW.
 - (g) Obtaining approval of any tree pruning from Council's tree management team.
 - (h) Covering all costs associated with closing the road, including traffic control and permit fees.
- 2. Removes parking spaces from 4 pm the day before the first deliveries occur to facilitate the structural panel lift.
 - 3. Relocates the existing accessible parking space in front of 6 Consett Avenue to the southern side of the driveway of 4 Consett Avenue for the duration of the works.
 - 4. Delegates authority to the Executive Manager, Infrastructure Services, to approve the dates that the operation will occur and to extend the dates, if required.

ITEMS BY EXCEPTION

The following items on the agenda were dealt with together and the Council Officer's Proposal for each item was unanimously supported by the Committee:

- | | |
|---------------|--|
| TC/C.02/21.09 | Spring Street, Bondi Junction – Temporary Closure for Tower Crane Removal. |
| TC/C.03/21.09 | 12 Gipps Street, Bronte – 'P Disability Only' Zone. |
| TC/C.04/21.09 | 11 Avoca Street, Bondi – 'P Disability Only' Zone – Removal. |
| TC/V.02/21.09 | 19 Chambers Avenue, Bondi Beach – 'P Disability Only' Zone – Removal. |
| TC/V.03/21.09 | 18 Rickard Avenue, Bondi Beach – 'P Disability Only' Zone – Removal. |
| TC/V.04/21.09 | 55 Wellington Street, Bondi Beach – 'P Disability Only' Zone – Removal. |
| TC/V.05/21.09 | 244 Campbell Parade, Bondi Beach – Construction Zone in Ramsgate Avenue. |
| TC/V.06/21.09 | 515 Old South Head Road, Rose Bay – Construction Zone in Beaumont Street. |

PART 1 – MATTERS PROPOSING THAT COUNCIL EXERCISE ITS DELEGATED FUNCTIONS

NOTE: The matters listed under this part of the agenda propose that Council either does or does not exercise the traffic related functions delegated to it by TfNSW. The recommendations made by the Committee under this part of the agenda will be submitted to Council for adoption.

TC/C STATE ELECTORATE OF COOGEE**TC/C.01/21.09 Park Parade to Watson Street, Bondi - Resident Parking Scheme - Area 15
(A02/0750)****COUNCIL OFFICER'S PROPOSAL:**

That Council introduces a '2P, 8 am–6 pm, Mon–Sat, Permit Holders Excepted, Area 15' resident parking scheme between Bondi Road and Birrell Street, Bondi, in the following streets, as shown in Figure 1 of the report:

1. Park Parade.
2. Bennett Street.
3. Watson Street.
4. King Street.
5. Ewell Street.
6. Ocean Street.
7. Ocean Lane.
8. Grove Street.
9. Coulton Street.
10. Stephen Street.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted subject to an amendment and the addition of a new clause such that the recommendation now reads as follows:

That:

1. Council introduces for a 12-month trial a '2P, 8 am–6 pm, Mon–Sat, Permit Holders Excepted, Area 15' resident parking scheme between Bondi Road and Birrell Street, Bondi, in the following streets, as shown in Figure 1 of the report, with a report back to Council at the end of the trial:
 - (a) Park Parade.
 - (b) Bennett Street.
 - (c) Watson Street.

- (d) King Street.
- (e) Ewell Street.
- (f) Ocean Street.
- (g) Ocean Lane.
- (h) Grove Street.
- (i) Coulton Street.
- (j) Stephen Street.

2. Residents living within the consultation area identified in Figure 1 of the report be eligible for parking permits within this area.

Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

C Johnson, M Mayoh and P B Vaughan and G Vaughan addressed the meeting.

TC/C.02/21.09 Spring Street, Bondi Junction - Temporary Closure for Tower Crane Removal (SF21/4377)

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Approves the temporary closure of Spring Street, Bondi Junction, between Denison Street and Newland Street, from 6.00 am to 10.00 pm on a Sunday to be determined by the Executive Manager, Infrastructure Services, to facilitate the removal of a tower crane, subject to the applicant:
 - (a) Obtaining a Road Occupancy Licence from Transport for NSW.
 - (b) Obtaining approval from NSW Police.
 - (c) Notifying the State Transit Authority, NSW Ambulance Service and NSW Fire and Rescue.
 - (d) Notifying affected residents and businesses in Spring Street between Denison Street and Newland Street of the changes in traffic in writing prior to implementation of the road and footpath closure.
 - (e) Using traffic controllers accredited by Transport for NSW.
 - (f) Covering all costs associated with closing the road, including traffic control.
 - (g) Undertaking a before and after dilapidation survey of the trees in the vicinity of the mobile crane setup.
2. Requires a Council officer to be on-site for the duration of the works at the applicant's expense, and

that this be communicated to the applicant.

3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of the road closure, or approve any backup date and times, if required.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/C.03/21.09 12 Gipps Street, Bronte - 'P Disability Only' Zone (SF21/4519)

COUNCIL OFFICER'S PROPOSAL:

That Council installs a 6 metre 'P Disability Only' parking zone outside 12 Gipps Street, Bronte.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/C.04/21.09 11 Avoca Street, Bondi - 'P Disability Only' Zone - Removal (A20/0534)

COUNCIL OFFICER'S PROPOSAL:

That Council approves the removal of the 6 metre 'P Disability Only' parking zone outside 11 Avoca Street, Bondi.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Coogee, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/V STATE ELECTORATE OF VAUCLUSE

TC/V.01/21.09 Flood Street/Watkins Street, Bondi - Kerb Buildout (SF21/4465)

COUNCIL OFFICER'S PROPOSAL:

That Council, in accordance with the drawing attached to the report, installs:

1. A kerb buildout on both sides of the Watkins Street intersection with Flood Street, Bondi.

2. Kerb ramps aligned for direct access across Watkins Street.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/V.02/21.09 19 Chambers Avenue, Bondi Beach - 'P Disability Only' Zone - Removal (A20/0534)

COUNCIL OFFICER'S PROPOSAL:

That Council removes the 2.8 metre 'P Disability Only' parking zone outside 19 Chambers Avenue, Bondi Beach, and reinstates '2P Meter Registration 8 am–10 pm Permit Holders Excepted Area 8' parking restrictions in its place.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/V.03/21.09 18 Rickard Avenue, Bondi Beach - 'P Disability Only' Zone - Removal (A20/0534)

COUNCIL OFFICER'S PROPOSAL:

That Council removes the 5.5 metre 'P Disability Only' parking zone outside 18 Rickard Avenue, Bondi Beach, and reinstates '2P 8 am–10 pm Permit Holders Excepted Area 4' parking restrictions in its place.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vaucluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/V.04/21.09 55 Wellington Street, Bondi Beach - 'P Disability Only' Zone - Removal (A20/0534)

COUNCIL OFFICER'S PROPOSAL:

That Council removes the 5.4 metre 'P Disability Only' parking zone outside 55 Wellington Street, Bondi Beach, and reinstates '2P 8 am–10 pm Permit Holders Excepted Area 4' parking restrictions in its place.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/V.05/21.09 244 Campbell Parade, Bondi Beach - Construction Zone in Ramsgate Avenue (A03/2514-04)**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 12 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone in Ramsgate Avenue at the rear of 244 Campbell Parade, Bondi Beach.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/V.06/21.09 515 Old South Head Road, Rose Bay - Construction Zone in Beaumont Street (A03/2514-04)**COUNCIL OFFICER'S PROPOSAL:**

That Council:

1. Installs a 12 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone in Beaumont Street along the southern side of 515 South Head Road, Rose Bay.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted.

Voting members present for this item: Representative of the Member for Vacluse, NSW Police

representative, TfNSW representative and Waverley Council representative (Chair).

TC/V.07/21.09 Glenayr Avenue, Bondi Beach - Resheeting and Streetscape Upgrade (A20/0069)

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs and upgrades traffic devices, signs and line marking in Glenayr Avenue, between Blair Street and O'Brien Street, Bondi Beach, in accordance with the drawings attached to the report.
2. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances, including feedback from community consultation, warrant changes.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted subject to an amendment to clause 1 and the addition of a new clause such that the recommendation now reads as follows:

That Council:

1. Installs and upgrades traffic devices, signs and line marking in Glenayr Avenue, between Blair Street and O'Brien Street, Bondi Beach, in accordance with the drawings attached to the report, subject to the 'Left Turn Only Buses Excepted' sign on the southbound approach of Glenayr Avenue to Curlewis Street not being installed.
2. Further consults Transport for NSW regarding the design of the continuous footpath treatments.
3. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances, including feedback from community consultation, warrant changes.

Voting members present for this item: Representative of the Member for Vacluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

TC/CV ELECTORATES OF COOGEE AND VAUCLUSE

TC/CV.01/21.09 Pick-up/Drop-off (PUDO) Bays (SF18/4225)

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Makes permanent the pick-up/drop-off (PUDO) bays currently installed at the following locations, including signage and line marking:
 - (a) Glenayr Avenue, south side, between Glasgow Avenue and Beach Road, Bondi Beach (5.4 metres).
 - (b) Curlewis Street, north side, between Campbell Parade and Gould Street, Bondi Beach (9.0 metres).

- (c) Roscoe Street, north side, between Gould Street and Gould Lane, Bondi Beach (9.4 metres).
 - (d) Hall Street, north side, between Gould Lane and Campbell Parade, Bondi Beach (6.0 metres).
 - (e) Campbell Parade, west side, between Lamrock Avenue and Hall Street, Bondi Beach (6.7 metres).
 - (f) Hall Street, north side, between O'Brien Street and Gould Street, Bondi Beach (18.0 metres).
 - (g) Adelaide Street, west side, between Oxford Street and Grafton Street, Bondi Junction (15.0 metres).
 - (h) Bronte Road, west side, between Ebley Street and Spring Street, Bondi Junction (24.0 metres).
 - (i) Grafton Street, south side, between Grosvenor Street and Newland Street, Bondi Junction (16.9 metres).
 - (j) Ebley Street, north side, between Newland Street and Bronte Road, Bondi Junction (10.0 metres).
2. Assesses initiatives for future PUDO bays on a case-by-case basis via referral to the Waverley Traffic Committee.

WTC RECOMMENDATION (UNANIMOUS SUPPORT):

That the Council Officer's Proposal be adopted subject to an amendment to clause 1(i) such that the recommendation now reads as follows:

That Council:

1. Makes permanent the pick-up/drop-off (PUDO) bays currently installed at the following locations, including signage and line marking:
- (a) Glenayr Avenue, south side, between Glasgow Avenue and Beach Road, Bondi Beach (5.4 metres).
 - (b) Curlew Street, north side, between Campbell Parade and Gould Street, Bondi Beach (9.0 metres).
 - (c) Roscoe Street, north side, between Gould Street and Gould Lane, Bondi Beach (9.4 metres).
 - (d) Hall Street, north side, between Gould Lane and Campbell Parade, Bondi Beach (6.0 metres).
 - (e) Campbell Parade, west side, between Lamrock Avenue and Hall Street, Bondi Beach (6.7 metres).
 - (f) Hall Street, north side, between O'Brien Street and Gould Street, Bondi Beach (18.0 metres).
 - (g) Adelaide Street, west side, between Oxford Street and Grafton Street, Bondi Junction (15.0 metres).
 - (h) Bronte Road, west side, between Ebley Street and Spring Street, Bondi Junction (24.0 metres).

- (i) Grafton Street, south side, between Grosvenor Street and Newland Street, Bondi Junction (16.9 metres), with additional signage on time limits.
 - (j) Ebley Street, north side, between Newland Street and Bronte Road, Bondi Junction (10.0 metres).
2. Assesses initiatives for future PUDO bays on a case-by-case basis via referral to the Waverley Traffic Committee.

Voting members present for this item: Representative of the Member for Coogee, Representative of the Member for Vaucluse, NSW Police representative, TfNSW representative and Waverley Council representative (Chair).

THE MEETING CLOSED AT 11.19 AM.

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SIGNED AND CONFIRMED
MAYOR
26 OCTOBER 2021

REPORT

TC/C.01/21.10



Subject: 39-43 Waverley Street, Bondi Junction - 'No Parking' Zone - Removal

TRIM No: A14/0145

Author: Paul Cai, Traffic Engineer
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council replaces the 12.3 metre 'No Parking' zone outside 39-43 Waverley Street, Bondi Junction, with a '1/2P Meter Registration 8 am-9 pm Permit Holders Excepted Area 22' restriction.

1. Executive Summary

Council has received a request to review the existing 12.3 metre 'No Parking' zone outside 39-43 Waverley Street, Bondi Junction. This includes a 5.7 metre kerb-side lane and the 6.6 metre driveway of 39-43 Waverley Street. The location shown in Figure 1.

It is proposed to replace the 'No Parking' zone with a '1/2P Meter Registration 8 am-9 pm Permit Holders Excepted Area 22' restriction. This is the same as the parking restriction that is in place on either side of the 'No Parking' zone.

The existing and proposed signage is shown in Figure 2.

Council will need to exercise its delegated functions to implement the proposal.



Figure 1. Existing location of 'No Parking' zone fronting 39-43 Waverley Street.



Figure 2. Existing and proposed parking controls outside 39–43 Waverley Street.

2. Introduction/Background

The 'No Parking' zone was installed sometime between November 2009 and September 2013.

3. Technical Analysis

On-street parking demands are high in Waverley Street. Replacement of the 'No Parking' zone with a time-restricted parking zone will result in one additional on-street parking space

The extension of the 'No Parking' zone into 5.7 metres of on-street parking may have been to improve sight lines from drivers exiting 39–43 Waverley Street. This is not required.

The existing driveway is a two-way driveway with a width of 6.6 metres. Sight distances from the driveway are satisfactory.

4. Financial Information for Council's Consideration

Council will undertake the work with funds from existing budgets.

5. Attachments

Nil.

REPORT
TC/C.02/21.10

Subject: Scott Street and Marroo Street Intersection, Bronte - 'No Stopping' Zone

TRIM No: A14/0145

Author: Paul Cai, Traffic Engineer
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council installs a 10 metre 'No Stopping' zone on the southern and northern side of Scott Street, Bronte, at the intersection of Marroo Street.

1. Executive Summary

Representations have been received from Council's Waste Collection team to review parking controls at the intersection of Scott Street and Marroo Street, Bronte (see Figure 1). It is reported that cars parked on the southern and northern side of Scott Street adjacent to Marroo Street restrict access for waste vehicles.

It is proposed to signpost 10 metres of 'No Stopping' on either side of Scott Street, west of Marroo Street, as shown in Figure 2.

Council will need to exercise its delegated functions to implement the proposal.

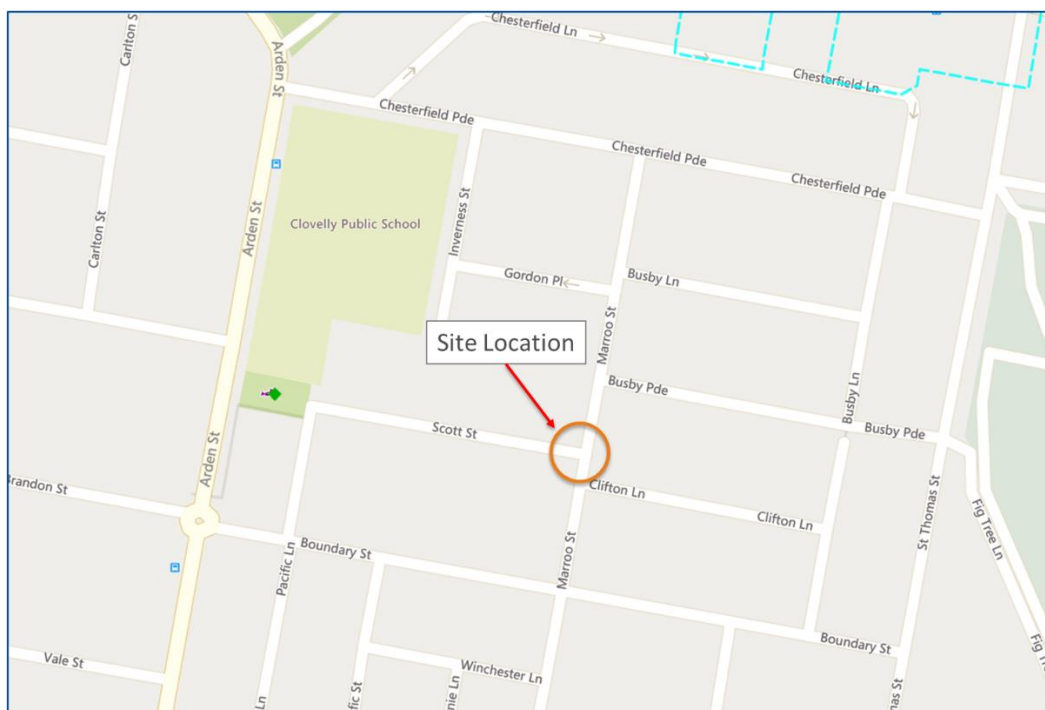


Figure 1. Site location.



Figure 2. Proposed 10 metre 'No Stopping' zone to be signposted.

2. Introduction/Background

Council's Waste Collection team has reported that waste vehicles servicing Scott Street have difficulty turning in and out of Scott Street due to cars parked too close to the intersection.

There are currently no signposted parking restrictions on both sides of Scott Street, adjacent to the intersection of Scott Street and Marroo Street.

3. Technical Analysis

Rule 170 of the NSW *Road Rules 2014* further reinforces this report's recommendations:

170 – Stopping in or near an intersection

(3) A driver must not stop on a road within 10 metres from the nearest point of an intersecting road at an intersection without traffic lights, unless the driver stops—

- (a) at a place on a length of road, or in an area, to which a parking control sign applies and the driver is permitted to stop at that place under these Rules, or
- (b) if the intersection is a T-intersection—along the continuous side of the continuing road at the intersection.

Signposted 'No Stopping' restrictions, as shown in Figure 2, are recommended.

4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets.

5. Attachments

Nil.

REPORT
TC/V.01/21.10

Subject: Blake Street, Dover Heights - Traffic Calming

TRIM No: A03/0042-04

Author: Malik Almuhanha, Senior Traffic Engineer
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs two sets of rubber speed cushions in Blake Street, Dover Heights, for a 12-month trial, as shown in Figure 2 of the report.
2. Installs a 10 metre 'BB' line at the intersection of Blake Street and Old South Head Road, as shown in Figure 3 of the report.
3. Delegates authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes.

1. Executive Summary

Council has consulted residents of Blake Street, Dover Heights, and surrounding streets on options to improve conditions following a number of collisions with parked vehicles along Blake Street.

An initial survey was conducted from 1 May to 24 May 2021 through 'Have Your Say'. 245 residents from Blake Street and surrounding streets were provided with three traffic calming options. Two involved making Blake Street one-way, which affected surrounding streets. The consultation included streets other than Blake Street, as the one-way options would result in diversions. The one-way options were not supported by most residents.

A second survey was undertaken between 29 July and 30 August 2021. This survey was sent to 74 residents in Blake Street only. It presented refined traffic calming options, including speed cushions and passing bays across driveways ('No Parking' restrictions).

53 responses were received. Of these:

- 20 preferred the parking bays option, 33 did not.
- 28 preferred speed cushions, 25 did not.
- 28 preferred changing the priority control at the intersection of Gilbert Street, 25 did not.

Of the 53 responses, 38 were from Blake Street residents. Of these:

- 15 preferred the parking bays option, 23 did not.
- 24 preferred speed cushions, 14 did not.

- 23 preferred changing the priority control at the intersection of Gilbert Street, 13 did not.

It is proposed that Council approves the trial of rubber speed cushions as shown in Figure 2. This would be for a 12-month trial, after which Blake Street residents would again be surveyed for their views as to whether they should be retained.

It is also recommended that a 10 metre 'BB' line be installed at the intersection of Blake Street and Old South Head Road, as shown in Figure 3 of the report.

Changing the priority control at the intersection of Gilbert Street is a bigger issue with wider ramifications. Further consultation is required with the wider community before considering this further.

Installation of passing bays across driveways using 'No Parking' restrictions did not receive sufficient support from Blake Street residents to pursue further.

Delegation of authority to the Executive Manager, Infrastructure Services, to modify the designs should on-site circumstances warrant changes is also proposed. This covers situations where factors such as drainage or a minor change in location, size of ramps, wings or threshold prove necessary.

Council will need to exercise its delegated functions to implement the proposal.

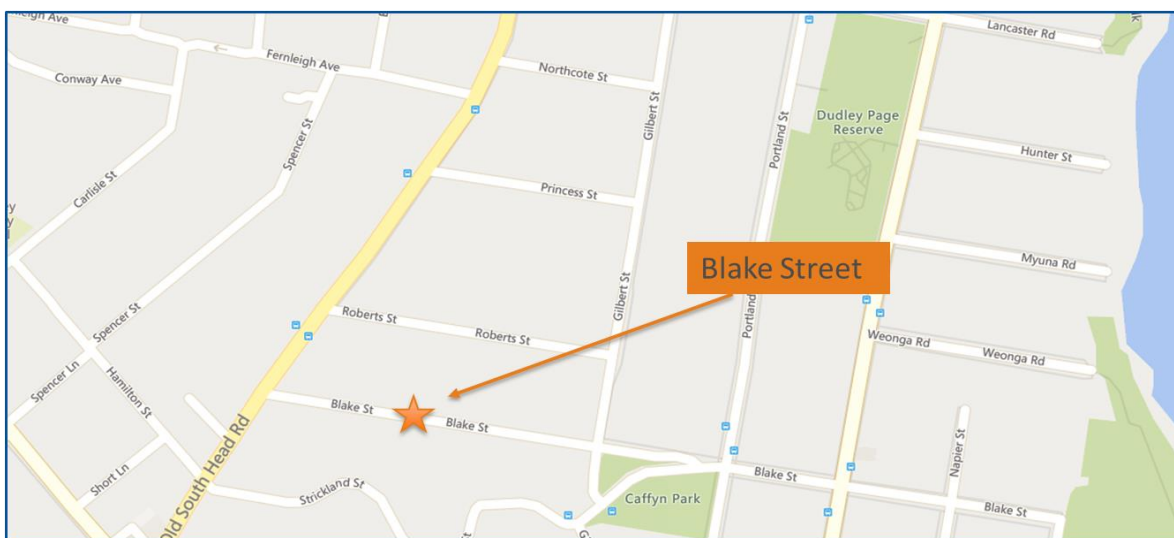


Figure 1. Blake Street.



Figure 2. Proposed rubber speed cushions along Blake Street.

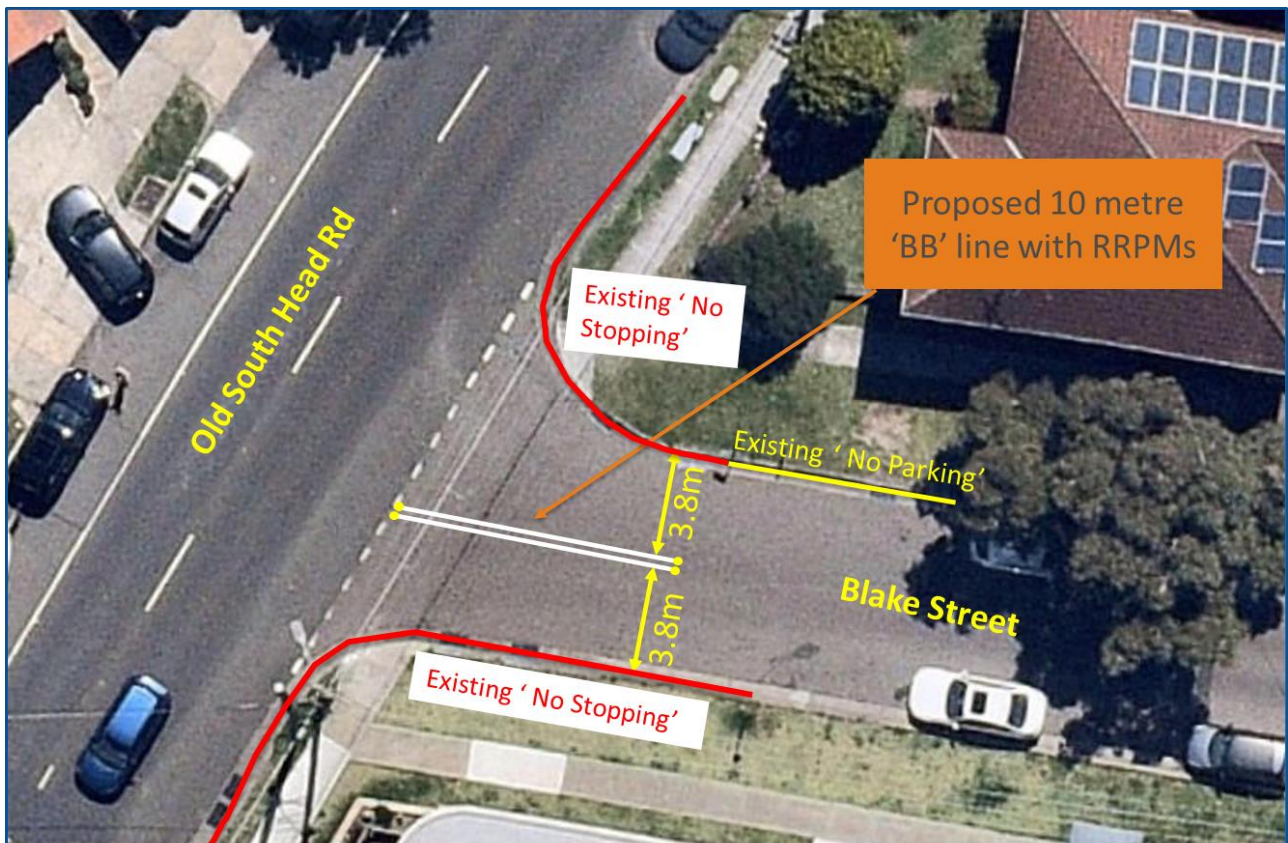


Figure 3. Proposed 10 metre BB line and raised reflective pavement markers (RRPMs).

2. Introduction/Background

Blake Street between Gilbert Street and Old South Head Road is a 7.5 metre road with parking on both sides. This leaves 3.3 metres to service a two-way traffic flow where parking occurs on both sides of the road.

Residents of Blake Street reached out to Council following a number of collisions that have occurred along Blake Street where multiple parked cars have been sideswiped.

Council staff consulted with residents of Blake Street and surrounding streets. Results of the surveys are presented in the technical analysis section.

3. Technical Analysis

Consultation

Two surveys were conducted. The first survey included residents of Blake Street, Dover Heights and surrounding streets. The second survey was delivered to residents of Blake Street only. Note that some responses to the second survey were received from people who did not live in Blake Street.

Survey 1 – April 2021

Residents were asked in the first survey to provide their view on five general options for changing traffic conditions:

1. Installation of two rubber speed cushions.
2. One-way options (eastbound and westbound).

3. Passing Bays (No Parking across some driveways).
4. Other.
5. Leave as is.

Out of 245 households consulted, 87 responses were received. Results of the first survey are outlined in Figure 4.

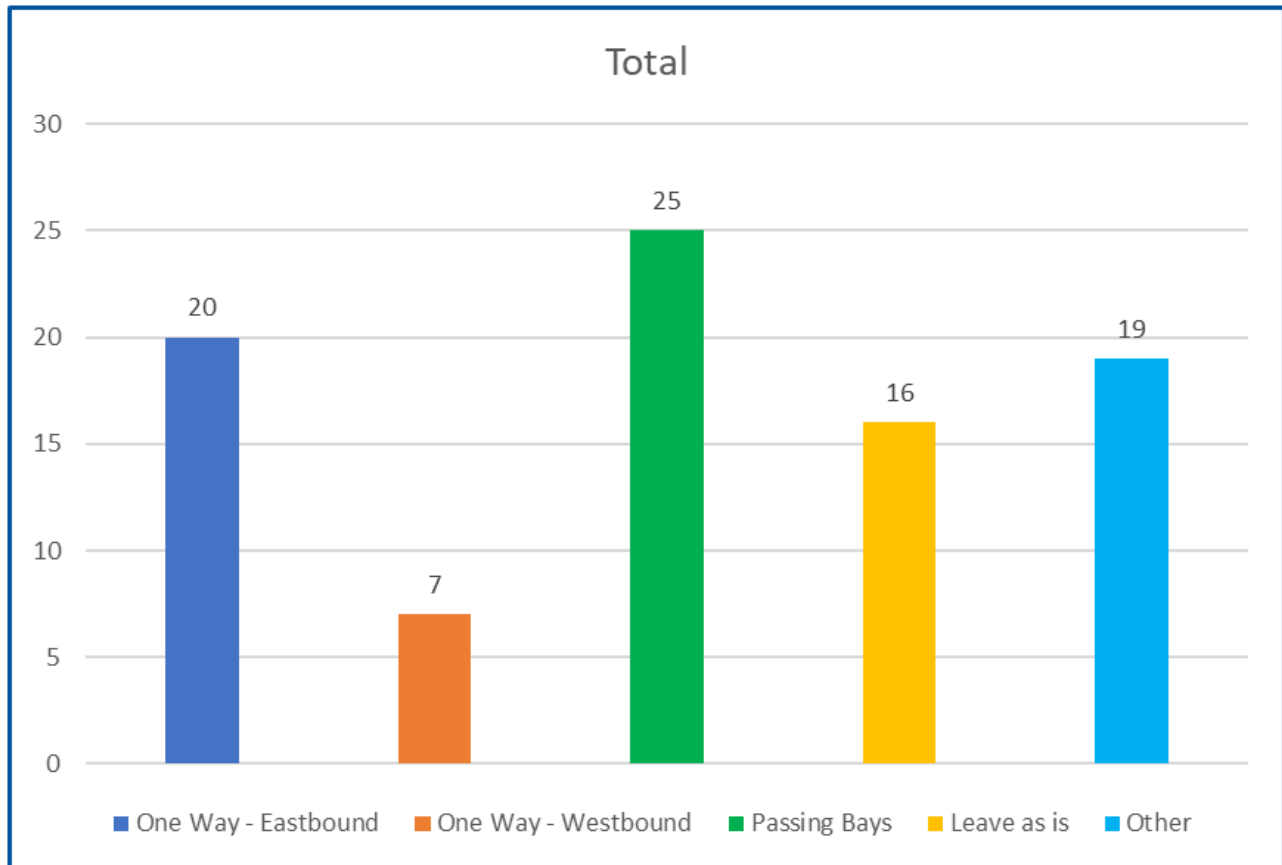


Figure 4. Results of the first survey.

Survey 2 – August 2021

In the second survey, residents of Blake Street were asked to provide their view on three options:

1. Installation of two rubber speed cushions.
2. Passing Bays (No Parking across some driveways).
3. Shifting priority control at Blake Street and Gilbert Street.

Out of 74 households consulted, 53 responses were received. A summary of the results for each option is outlined below.

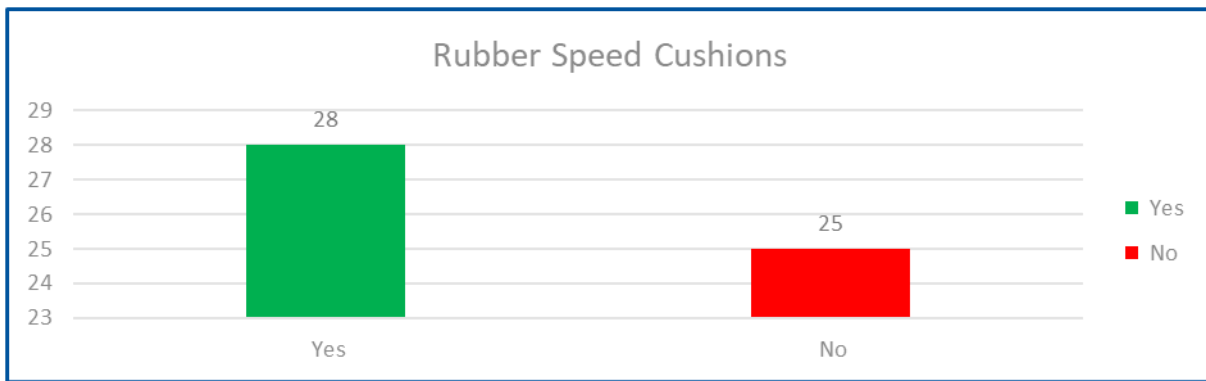


Figure 5. Rubber speed cushions – All streets.

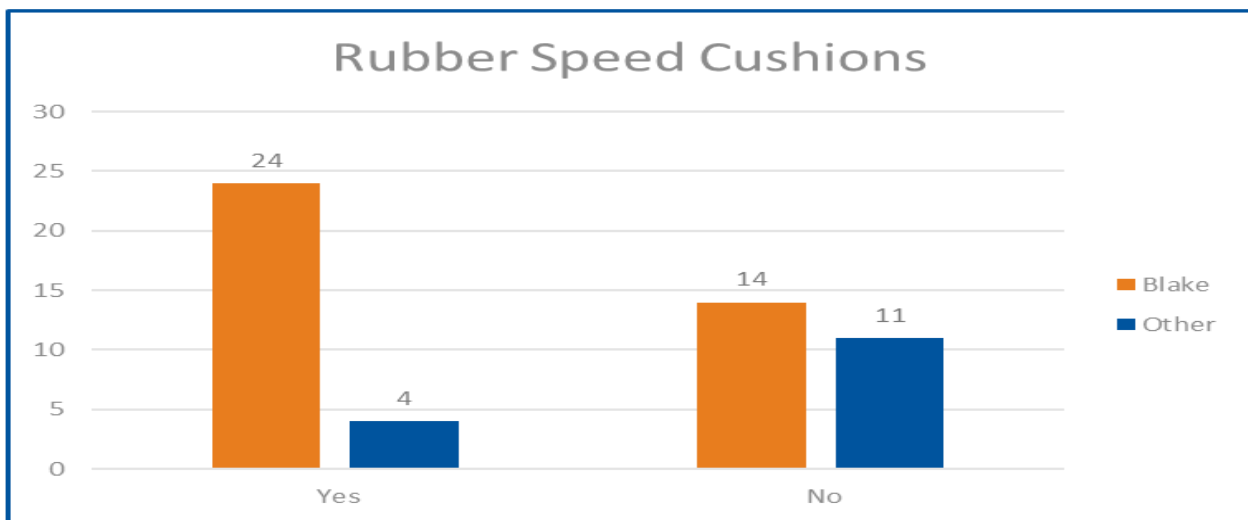


Figure 6. Rubber speed cushions – By street.

Figures 5 and 6 show strong support for the rubber speed cushions option from Blake Street residents.

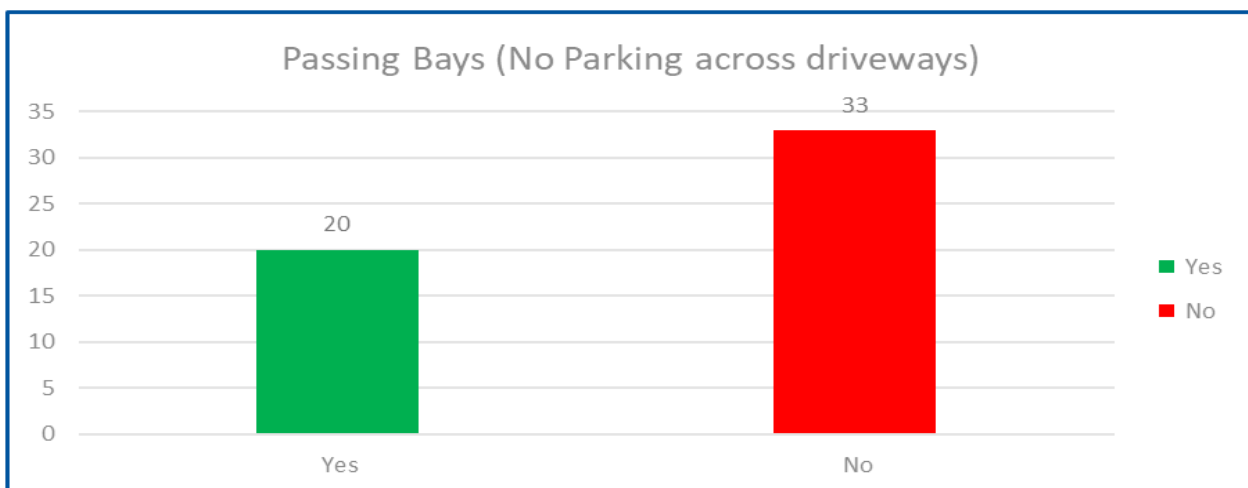


Figure 7. Passing bays – All streets.

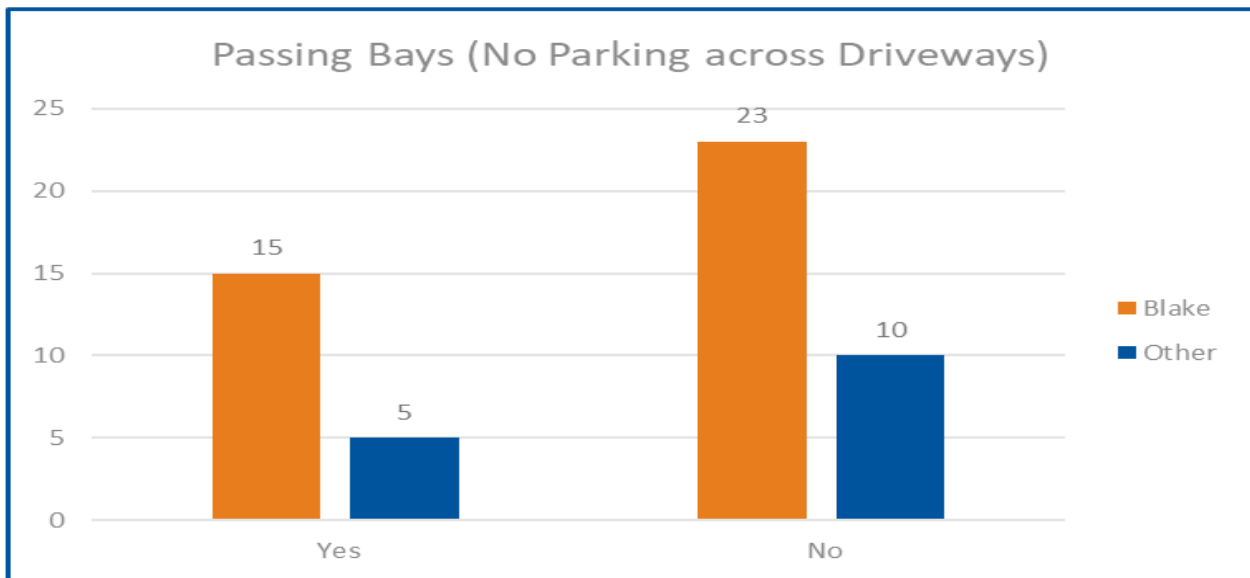


Figure 8. Passing bays – By street.

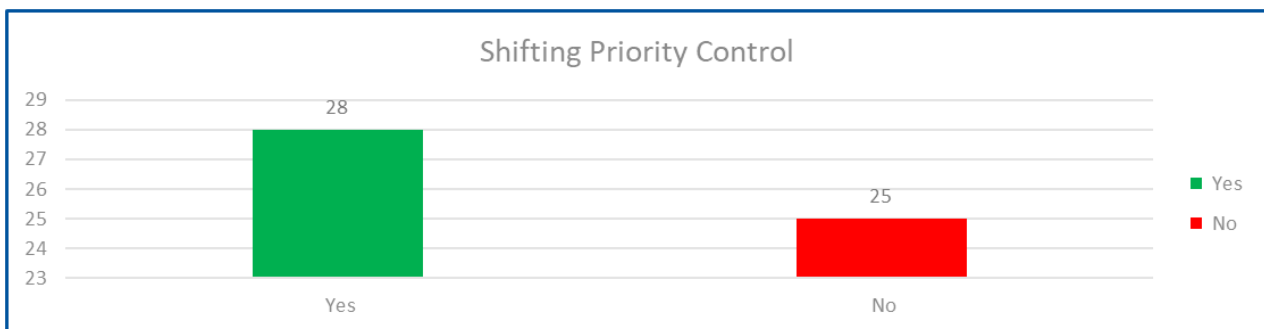


Figure 9. Shifting priority control – All streets.

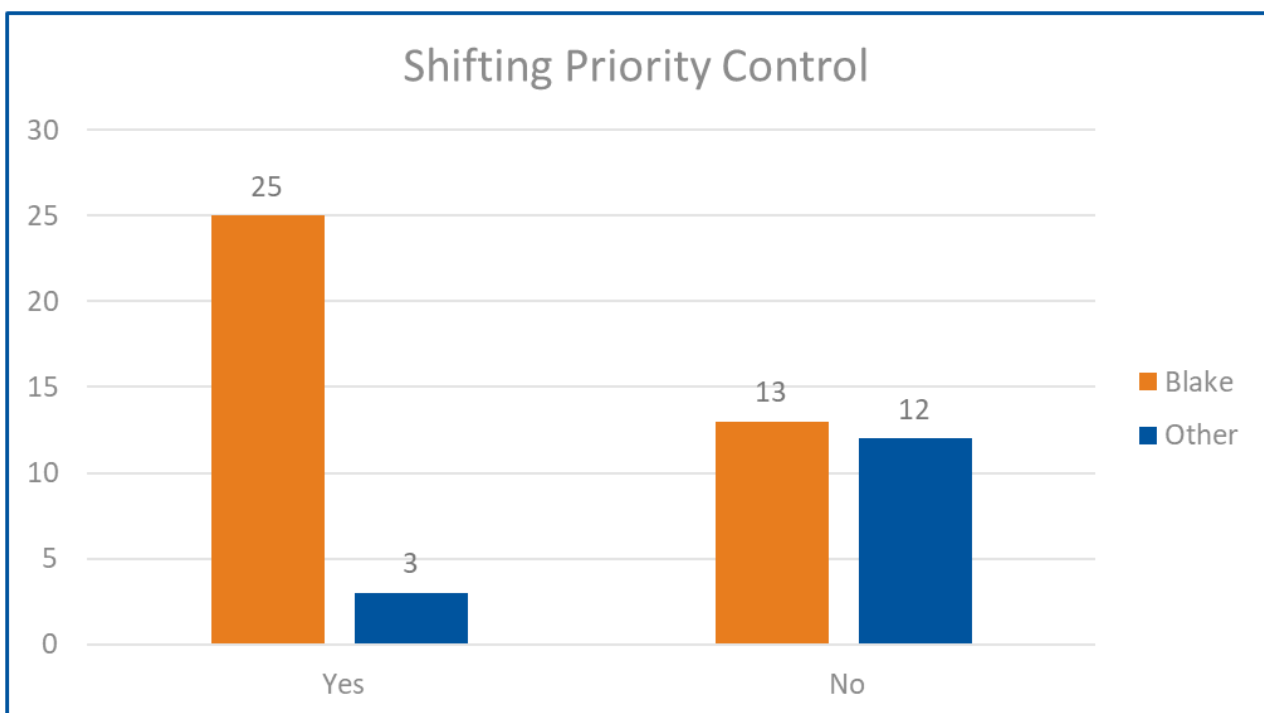


Figure 10. Shifting priority control – By street.

Comments from residents

Some of the respondents provided comments in their response. The comments from the second consultation and Council officer responses are summarised in Table 1.

Table 1. Comments from respondents (second consultation).

| Comments | Response |
|--|--|
| The position of the cushions would really be too noisy as our bedroom is in the front of the house. Either the speed cushions need to be placed higher up the street or lower down the street. It really would not be beneficial for us. | The speed cushions are positioned optimally to slow vehicles down to benefit the wider community. The cushions will be trialled for 12 months. |
| The issue is the narrow road. The only solution is to implement passing bays. | Passing bays were not supported by most residents. |
| The problem with the no parking across driveways is that currently the lower part of the street gets really congested and not much parking due to the new apartments and shop developments on old south head road. I think the speeding up and down the hill is a bigger issue, people need to slow down | Passing bays were not supported by most residents. Slowing vehicles travelling on both directions will be achieved via speed cushions or speed humps. |
| Speed cushions and similar humps are widespread in Waverley so should present no problems except to drivers who damage their suspensions by speeding across them and ignore the speed restriction signs. There are usually several places where drivers can pass one another. Restricting passing to pre-determined 'no parking' locations will compromise this flexibility | Speed cushions are recommended. Passing bays were not supported by most residents. |
| We would like a 4 way stop sign, 2 in Gilbert St both directions and 2 in Blake St both directions | Changing the priority control at the intersection of Gilbert Street is a bigger issue with wider ramifications. Further consultation is required with the wider community before considering this further. |
| I do not want pillows or speed humps in the street! Once all the building is complete and no trucks congest the street it will calm down hopefully. If anything, a roundabout on OSH Rd at the intersection with Blake Street. I also suggest a roundabout at intersection of Blake and Gilbert Streets. | The speed cushions will be trialled for 12 months. They received support from most residents. |
| People shouldn't be parking across driveways anyway, and the installation of a sign will not change that fact or make much difference. What should happen is that there should be 'no stopping' | We would like to keep as much of the on-street parking as possible. Old South Head Road is a state road managed by |

| | |
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| for a longer stretch of the road at the intersection of Blake St & New South Head Rd so that cars turning right into Blake St are not blocked by cars waiting in the centre of Blake Street almost causing an accident. Perhaps clearer road lines depicting 2 lanes at that intersection will also help. | Transport for NSW. We are recommending a 10 metre 'BB' line at the intersection of Blake Street and Old South Head Road. |
| Only way to slow traffic is implement a one-way system uphill from Old South to Victory with one speed hump in the middle | One way option did not have sufficient community support. |
| I do not support eliminating parking. | No parking spaces will be removed as part of the proposal. |
| As parents we remain extremely concerned with the speed and the safety of our children. Therefore, our strongest support goes to the installation of speed cushions to try and slow the traffic particularly coming down the hill. Living towards the bottom of the street I find the speed of cars at this point of the road incredibly concerning. | Slowing vehicles travelling on both directions will be achieved via speed cushions or speed humps. |
| Adding more signs is visual pollution. It is well-known that people should not park across other people's driveways and owners should have the right to block their own driveway. | Passing bays were not supported by most residents. They are not recommended as part of the proposal. |
| The total strip should be no stopping or no parking and it doesn't affect any residents, no one parks there at night only during the day and is a hazard. Just try to go up when cars are trying to go up and cars trying to go down, it doesn't work. | We would like to keep as much of the on-street parking as possible available to residents. |
| There is not enough parking now. The footpath Should be widened. | There is no proposal to remove parking Blake Street. |
| Totally against speed cushions | We understand that this might be inconvenient to some. However, we are recommending this to improve safety for the wider community. |
| Park half car on the grass is good. | Parking on footpath/nature strip on public domain is not legal. |
| It could be permitted to park with 2 wheels on the grass of that small section of Blake St. We do not need speed humps there at all. We do need speed humps on Military Rd at Myuna Rd, due to hundreds of young families crossing Military Rd to get to Dudley Page Reserve. There should also be a pedestrian crossing to get to this child friendly park, especially since the addition of the bike track that attracts hundreds of young locals. | Parking on footpath/nature strip on public domain is not legal. We understand that rubber speed cushions might be inconvenient to some. However, we are recommending this to improve safety for the wider community. Current pedestrian counts do not warrant a crossing in Military Road outside Dudley Page Reserve. |

| | |
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| If the 'no parking' across driveways means that actual street parking is reduced, then this is a terrible idea. You are not allowed to park across a driveway anyway, so I don't understand the installation of signs! | There is no proposal to remove parking Blake Street. Passing bays were not supported by most residents. They are not recommended as part of the proposal. |
| I think Military Road narrowness is a bigger issue than Blake St. Spend the money to widen Military Rd by 500mm each side so the buses can pass. | The cost of road widening is prohibitive. The proposals for Blake Street are relatively inexpensive. |
| Residents should be permitted to install wider driveways which would also naturally allow a greater number of passing bays up and down the street. | Allowing wider driveways will result in further loss of on street parking which is not desirable. |
| Changing the stop signs between Blake and Gilbert would be a major issue from a safety point of view. While the parking and congestion in Blake Street is an issue, the real issue is the speed with which people travel down Blake Street, towards Old South Head Road. This needs to be stopped by placing a barrier at the top of Blake Street, where it 'merges' with Victory Street, which will stop vehicles coming down Blake Street at high speeds. In addition to this, Gilbert Street should be made a 'no parking' area between Blake and Roberts - it is extremely dangerous due to the poor visibility caused by the hill. | Changing the priority control at the intersection of Gilbert Street is a bigger issue with wider ramifications. Further consultation is required with the wider community before considering this further. |
| I have a young family and we believe the Street should stay as is. Traffic calming devices will create way too much noise, I know from living near them before. Also removing parking will only create another problem to residents where available on and off-street parking is already low. | We understand that rubber speed cushions might be inconvenient to some. However, we are recommending this to improve safety for the wider community. There is no proposal to remove parking Blake Street. |
| We are becoming very limited on parking. You are allowing permission for house to be split into 2. The house across the road is now 2 houses with 10 bedrooms. There are 6 more cars instantly on our section of the street as they don't use their garage. We don't have a garage. The issue is occurring from excess parking. Stop splitting houses would help. | This is a planning matter. Council's LEP identifies it as low density residential. Dual occupancies are allowed in this area subject to compliance with Council's DCP. |
| A weight limit for heavy load trucks would help a lot, since trucks that have conducted work in the Dover Heights area often use our road as a thoroughfare to Old South Head Rd. | We will be conducting a load limit investigation in the Waverley Council Local Government Area including Blake Street. |
| Firstly, we wish to reiterate that it's not suitable to locate a speed cushions between 11-13 & 12 Blake | The speed cushions are rubber not concrete. They will not impact stormwater drains. |

| | |
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| Street due to the fact that there are 2 storm water drains on either side of the street (opposite each other). Whenever there is heavy rain a large build-up of waste & rubbish accumulates in this area. Therefore, it will be Waverley council who will be regularly contacted to clean and clear this area, which is presenting done by the residents. Secondly, we believe that it would be advantageous to place 40km speed limit markings on the road. | Reduction of speeds are a matter of Transport for NSW. We are working with Transport for NSW to reduce speeds to 40km/h in Waverley Council Streets south of Bondi Road. Once this is finalised, we will get to streets north of Bondi Road. |
| Why don't you consider resident only parking spots along part of the street instead? | Resident Parking would not result in traffic calming. |
| Given the effort that has gone in to getting action on this issue, and the meeting in Blake St, these final options are inconsequential for the problem. Closing off Gilbert to Blake should deal with the root cause of the issue and should at least be a consideration for all residents to consider in this second round. | <p>A road closure for Blake Street is not recommended as the volumes do not warrant that.</p> <p>A closure would adversely impact other streets already carrying significant levels of traffic. Traffic speeds can be better addressed in the consideration of traffic calming.</p> |
| Supports one-way options. Does not support 'no parking across driveways in the street' as it would further congest the street and create additional safety hazards. | One way option did not have sufficient community support. No Parking restrictions will not result in congestion or additional safety hazards. Passing bays were not supported by most residents. |
| Stop speeding both up and down | This can only be achieved via speed cushions or speed humps. |

Other matters

Dover Heights Precinct has requested that no changes be made in relation to the proposed Blake Street traffic calming measures. The meeting was attended by 23 residents of the Dover Heights Precinct. The following motion (motion 3) was recorded at the meeting on 23 August 2021:

'Dover Heights Precinct requests that no changes be made in relation to the Blake Street Traffic Calming Measures. Give Way To Descending Vehicles signage is preferred at the intersection of Old South Head Road & Blake Street.'

The motion is contrary to the resident feedback. It is recommended that Council approves the installation of two sets of rubber speed cushions, as shown in Figure 2 of the report, for a 12-month trial period.

4. Financial Information for Council's Consideration

Funding for the trial will come from future budgets.

5. Attachments

Nil.

REPORT
TC/V.02/21.10

Subject: 45-47 Ramsgate Avenue, Bondi Beach - Temporary Road Closure for Panel Lift

TRIM No: SF21/4719

Author: Hamoon Bahari, Professional Engineer, Traffic and Transport
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Approves the temporary road and footpath closure of Ramsgate Avenue, Bondi Beach, between Campbell Parade and Wairoa Avenue, over two consecutive Sundays on dates to be agreed with Council, to facilitate the installation of structural panels, in accordance with the Traffic Guidance Scheme attached to the report and subject to the applicant:
 - (a) Notifying NSW Police and obtaining relevant approvals.
 - (b) Notifying NSW Ambulance Service and NSW Fire and Rescue.
 - (c) Notifying affected residents at least five working days prior to the event, with a follow-up notification on the day prior to day one of the road closure.
 - (e) Liaising with the residents of 66, 68, and 70A Ramsgate Avenue, whose driveways will be blocked for a short period of time (up to 20 minutes) during each lift.
 - (f) Using traffic controllers accredited by Transport for NSW.
 - (h) Covering all costs associated with closing the road, including traffic control and permit fees.
2. Removes parking spaces from 4 pm on the Saturday before the closure occurs.
3. Delegates authority to the Executive Manager, Infrastructure Services, to approve the dates that the operation will occur and to extend the dates, if required.

1. Executive Summary

Council has received an application from HSN Constructions requesting a temporary road and footpath closure to accommodate delivery and installation of structural panels at 45–47 Ramsgate Avenue, Bondi Beach (see Figure 1). The structural panels are part of what is typically referred to as a modular build where the structure of the building is built within a few days as opposed to months for a traditional concrete or brick build. It concentrates disturbance to residents to these few days instead of months.

The closure is proposed to occur between 7 am and 5 pm on two consecutive Sundays. It will involve standing of a Franna crane to transfer pre-cast panels from trucks to the building site.

Occupation of parking spaces to facilitate the structural panel lift is to commence from 4 pm the day before the proposed lift.

Traffic controllers accredited by Transport for NSW are to be assigned to manage the pedestrian flow around the work site.

Access for local residents in Ramsgate Avenue between Campbell Parade and Wairoa Avenue is to remain open. Traffic controllers will be in place to guide pedestrians, construction vehicles and traffic. Vehicular access to 66, 68, and 70A Ramsgate Avenue will not be available during each lift (up to 20 minutes).

Council will need to exercise its delegated functions to implement the proposal.



Figure 1. Aerial view of proposed road closure on Ramsgate Avenue.

2. Introduction/Background

A development application (DA-336/2019) has been approved for demolition of two detached dwellings and construction of a four-storey residential flat building with basement car parking, consisting of 10 residential units.

The building will be constructed using pre-cast panels that are delivered and are hoisted from the street to the site via a Franna crane.

Ramsgate Avenue is a 7.0 metre wide one-way westbound street with parking on both sides.

The dimensions of the street are:

- 7.0 metres wide kerb-to-kerb.
- 2 x 2.1 metre parking lanes.
- 1 x 2.8 metre traffic lane.

The proposed Franna crane is 2.5 metres wide. This means that only 0.3 metres of space is left on the street, which is not enough for a vehicle to travel through. As a result, a full road closure is proposed.

3. Technical Analysis

The lifting of each pre-cast panel will take approximately 10 minutes from the time it is lifted off the truck and hoisted to the site. Access to and from driveways of 66, 68, and 70A Ramsgate Avenue may be restricted for up to 20 minutes during lifts.

A Traffic Guidance Scheme for the proposed operations is attached to this report. The crane location and the lifting zone fronting the site are shown in Figure 2 below.



Figure 2. Crane standing location and lifting zone.

The footpath along the work area on the south side of Ramsgate Avenue will be closed to pedestrians.

4. Financial Information for Council's Consideration

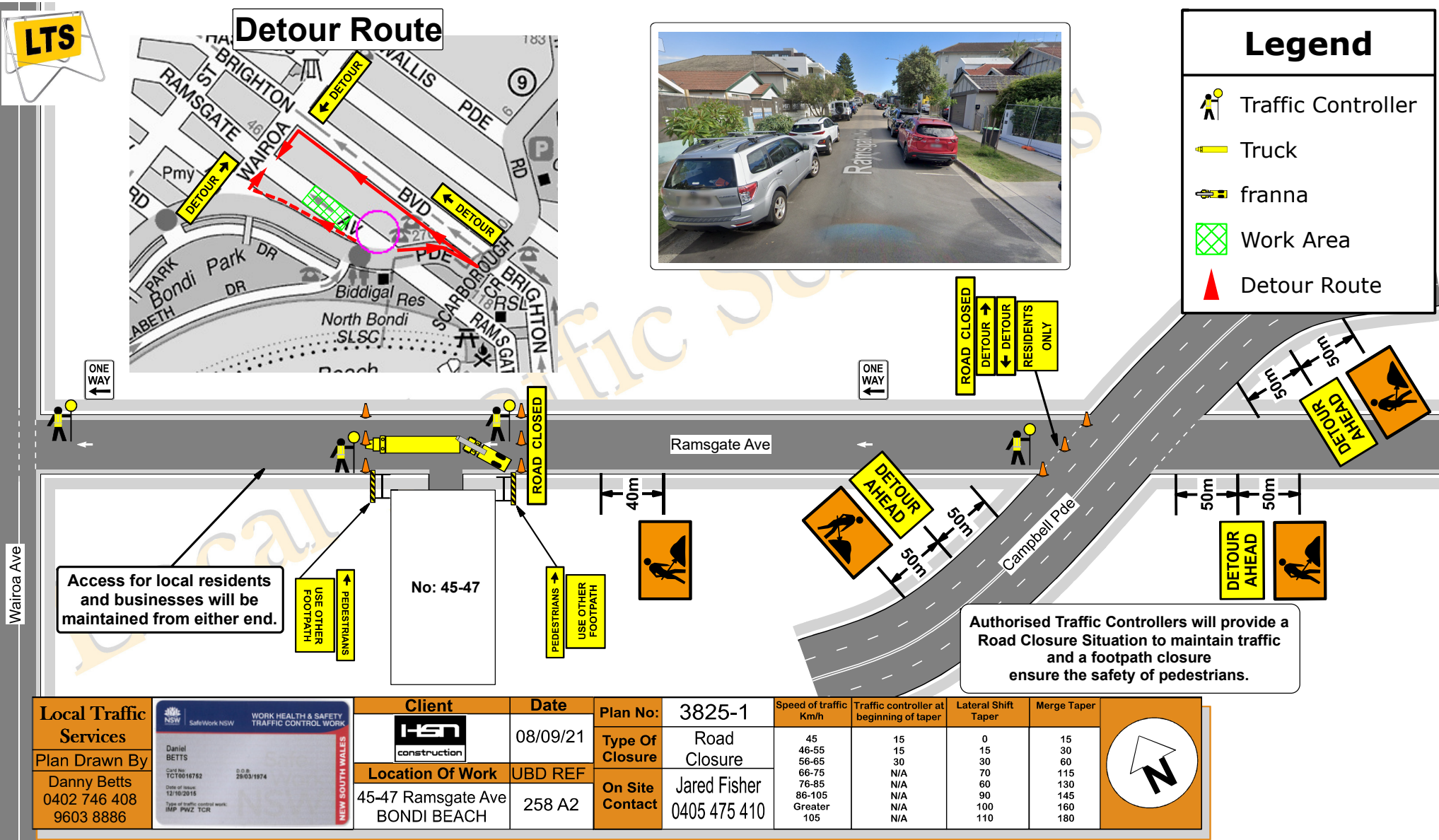
The applicant will be required to meet the cost of closing the road in accordance with Council's Fees and Charges for 2021–2022. The estimated fee is shown below.

Table 1. Fees.

| Category | Unit | Number/ Dimensions | RATE (GST Exempt) | FEE (\$) |
|---|----------------------|--|----------------------|-------------------|
| Application fee - Partial road closure (Non-Refundable) | per application | - | \$380.00 | \$0.00 |
| Application fee - Full road closure (Non-Refundable) | per application | 1 | \$760.00 | \$760.00 |
| Traffic Management Plan Assessment Fee - Non-Complex (dealt with via telephone/email) | per application | - | \$154.00 | \$0.00 |
| Traffic Management Plan Assessment Fee - Moderately Complex (site inspection and/or meetings required with applicant) | per application | - | \$460.00 | \$0.00 |
| Traffic Management Plan Assessment Fee - Very Complex (report required to go to Waverley Traffic Committee) | per application | 1 | \$1,435.00 | \$1,435.00 |
| Occupation of any non-metered area | per linear m per day | | | \$0.00 |
| Parallel parking | | 2 days x (2 x parallel parking of 24.5 metres in length on both sides) | \$15.00 | \$1,470.00 |
| Roadway | | 2 days x (1 x 3 metre traffic lane of 24.5 metres) | \$15.00 | \$735.00 |
| Footpath | | 2 days x (1 x footpath closure of 24.5 metres on south-west side only) | \$15.00 | \$735.00 |
| Occupation of metered parking spaces - 5.5 metres per unmarked parallel space - 2.8 metres per unmarked angle parking space | per space per day | - | \$142.00 | \$0.00 |
| Late fee – for applications lodged less than 5 working days prior to the start of activity. Note, this fee only applies to late applications that are able to be processed in time for the proposed works. It does not guarantee processing in time for the proposed works. | per application | - | \$312.00 | \$0.00 |
| Supervision Fee - 1 x supervisor | Per hour | 2 | \$160.00 | \$320.00 |
| | | | TOTAL PAYABLE | \$5,455.00 |

5. Attachments

1. Traffic Guidance Scheme [↓](#)



REPORT

TC/V.03/21.10



Subject: Blair Street and Glenayr Lane Intersection, Bondi Beach - 'No Stopping' Zone

TRIM No: A14/0145

Author: Hamoon Bahari, Professional Engineer, Traffic and Transport
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council installs a 'No Stopping (Right)' zone on the eastern corner of the intersection of Blair Street and Glenayr Lane, Bondi Beach, as shown in Figure 2 of the report.

1. Executive Summary

Council officers have received a request to review parking controls at the intersection of Blair Street and Glenayr Lane. It is reported that cars parked on Blair Street, west of Glenayr Lane, are being infringed as Council's Parking Patrol Officers are issuing infringement notices for parking within the statutory 10 metre distance of an intersection (see Figure 1).

It is proposed to clarify where the statutory 10 metre restriction applies by installing a No Stopping (right) sign at the intersection (see Figure 2).

Council will need to exercise its delegated functions to implement the proposal.

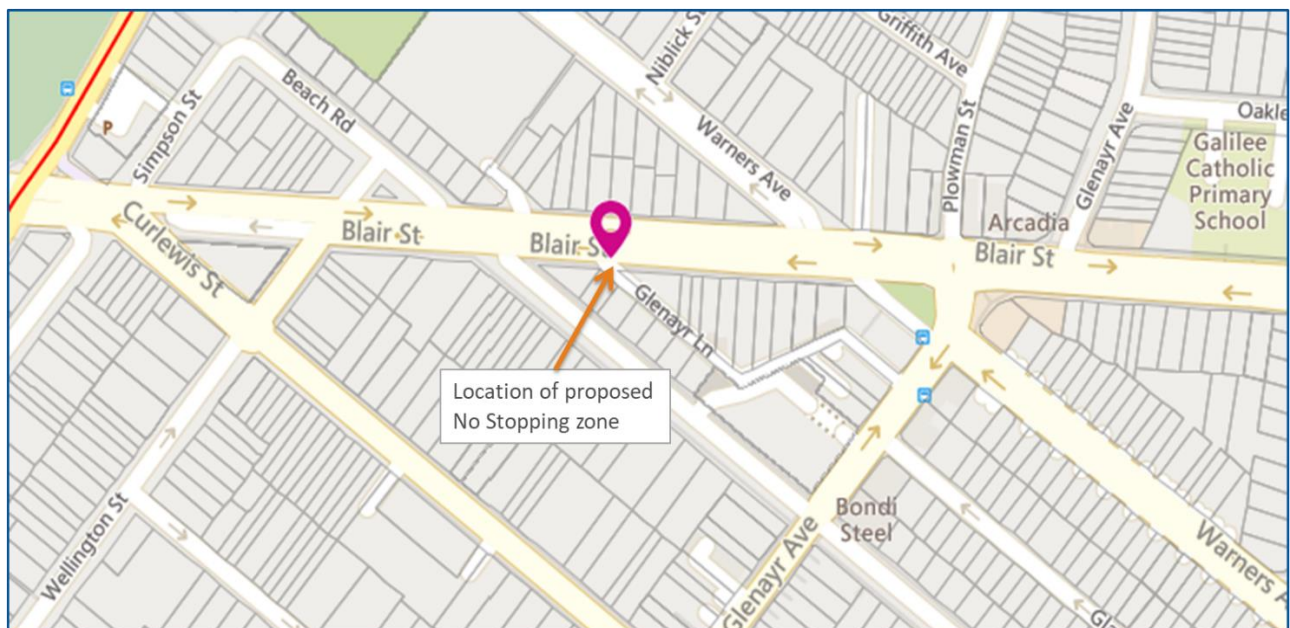


Figure 1. Site location.



Figure 2. Proposed 'No Stopping' sign.

2. Introduction/Background

Council has been requested to review parking controls at the corner of Blair Street and Glenayr Lane.

Vehicles have been issued infringement notices for parking within 10 metres of this intersection on the eastern corner of Blair Street intersecting with Glenayr Lane.

3. Technical Analysis

The NSW *Road Rules 2014* state that vehicles that park within 10 metres of an intersection will be issued an infringement notice. The 10 metres is measured from the tangent of the intersecting roads, as shown in Figure 4.

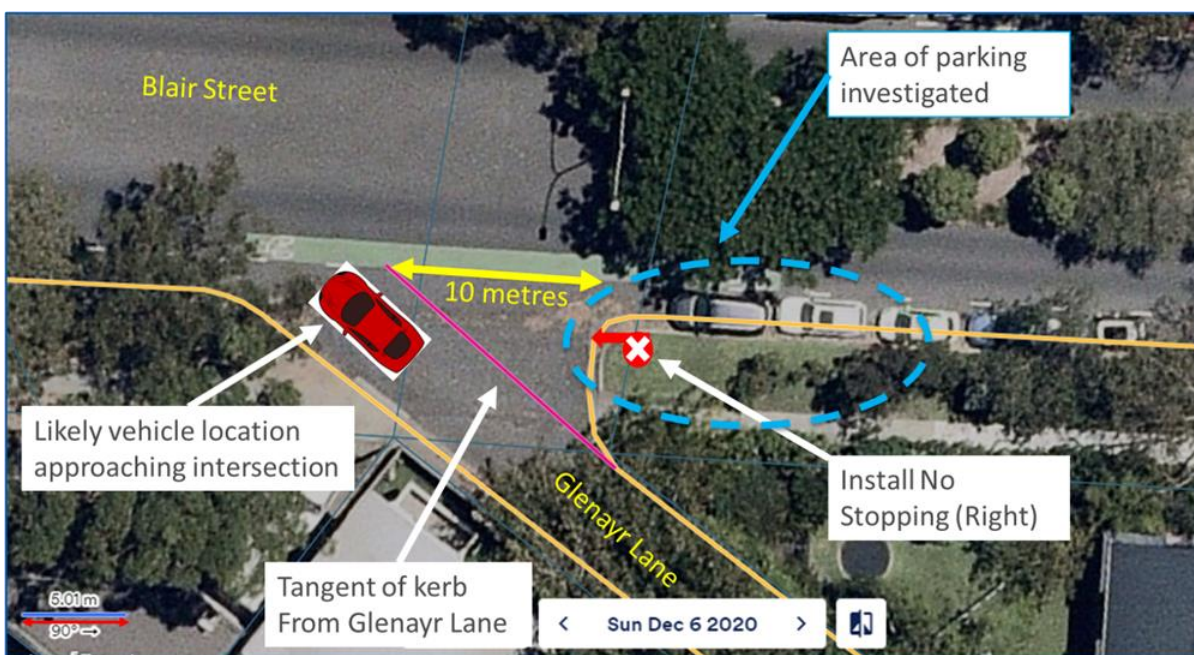


Figure 4. Intersection of Blair Street and Glenayr Lane.

Legislative requirements

Rule 170 of NSW *Road Rules 2014* (stopping at intersections and crossings) states that:

(3) A driver must not stop on a road within 10 metres from the nearest point of an intersecting road at an intersection without traffic lights, unless the driver stops—

(a) at a place on a length of road, or in an area, to which a parking control sign applies and the driver is permitted to stop at that place under these Rules, or

(b) if the intersection is a T-intersection—along the continuous side of the continuing road at the intersection.

4. Financial Information for Council's Consideration

Council will meet the cost of sign installation from existing budgets.

5. Attachments

Nil.

REPORT

TC/V.04/21.10



Subject: 47 Beach Road, Bondi Beach - Construction Zone

TRIM No: A03/2514-04

Author: Hamoon Bahari, Professional Engineer, Traffic and Transport
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 10 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone along the frontage of 47 Beach Road, Bondi Beach.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

1. Executive Summary

Council has received an application from the builder/developer at 47 Beach Road, Bondi Beach, for the installation of a 16 metre construction zone (see Figure 1). Council officers propose the installation of a 10 metre construction zone (see Figure 2).

Council will need to exercise its delegated functions to implement the proposal.

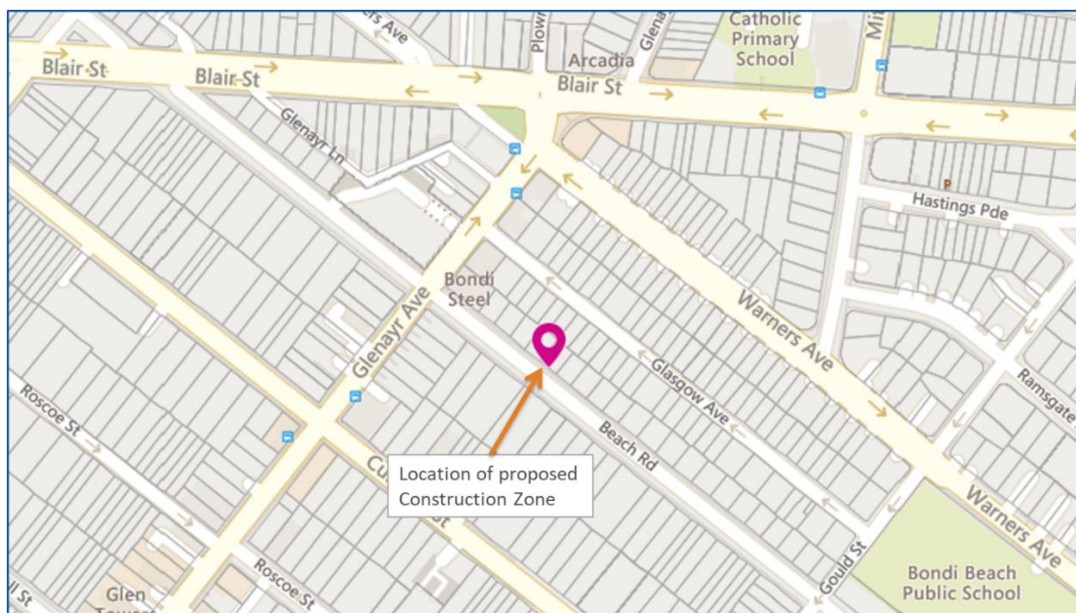


Figure 1. Site location.



Figure 2. Location to install construction zone signs.

2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

3. Technical Analysis

The existing and recommended parking allocation is shown below.

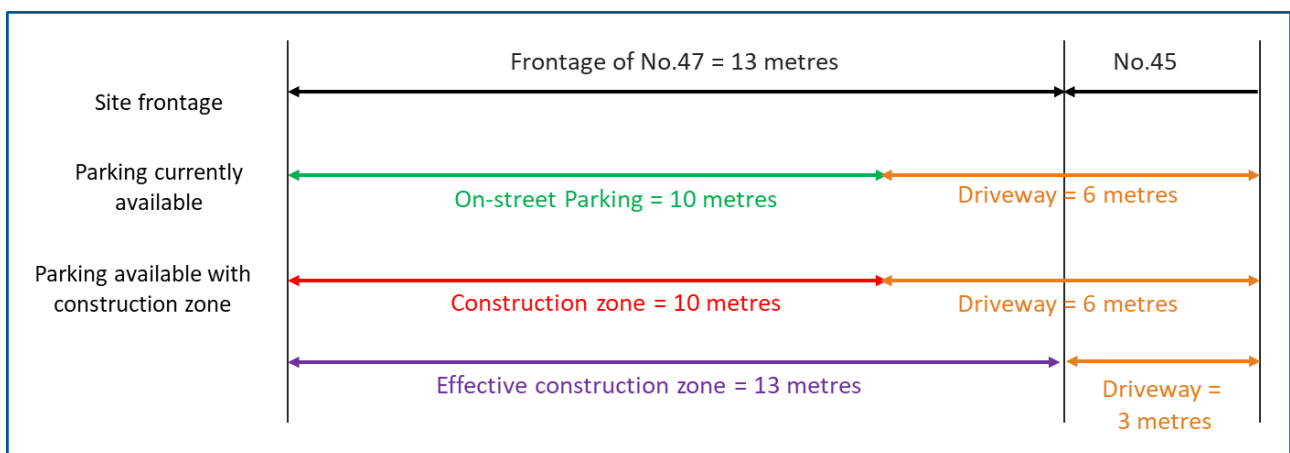


Figure 3. On-street parking allocation.

Table 1. Application details.

| | |
|---------------------------------------|--|
| Applicant | Conti Constructions |
| Development application | DA-149/2021 |
| Works | Substantial alterations and additions to dwelling, including first floor addition, double garage and swimming pool at rear |
| Approved hours of construction | 7 am–5 pm Monday–Friday; 8 am–3 pm Saturday |
| Frontage length | 13 metres |
| Road | Beach Road |
| Existing parking | 2P Meter Registration 8 am–10 pm Permit Holders Excepted Area 8 |
| Length requested by applicant | 16 metres |
| Length to be signposted | 10 metres |
| Planned duration | 12 months |
| Fee area | Residential with 2-hour parking |

Notification

Residents in the vicinity of the construction zone will be notified prior to it being installed. This forewarns residents/owners of the change in parking restrictions and the reason for it.

Figure 4 shows the properties to be notified about the Beach Road construction zone.



Figure 4. Notification area (hatched).

Signage

The proposed signage is shown below.

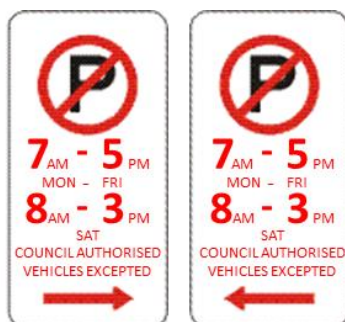


Figure 4. Proposed signage.

4. Financial Information for Council's Consideration

The estimated weekly fees for the construction zone are shown in Table 2. The fees are based on the signposted zone plus the driveway, which is effectively part of the construction zone but cannot be signposted due to the adjacent driveway preventing installation of a sign between the two driveways. Driveways are considered part of construction zones, as per Council's Guide for Construction Zones in the Waverley Local Government Area.

Table 2. Calculation of estimated fees.

| Category | Unit | Number/ Dimensions | Rate (GST Exempt) | Fee |
|---|-----------------------|-----------------------|----------------------|--------------------|
| Fee (Areas zoned low, medium, or high density residential) | per metre | | | |
| - Parallel parking | per week | 13 | \$70.00 | \$910.00 |
| - Angle parking | | | \$139.00 | \$0.00 |
| Fee (Areas zoned neighbourhood centre, commercial core, or mixed use) | per metre | | | |
| - Parallel parking | per week | | \$97.00 | \$0.00 |
| - Angle parking | | | \$190.00 | \$0.00 |
| Occupation of metered parking spaces (in addition to the above fees) | per space per week | 2 | \$387.00 | \$774.00 |
| Weekly Fee | | | | \$1,684.00 |
| 13 Weekly Fee | | | | \$21,892.00 |

5. Attachments

Nil.

REPORT
TC/V.05/21.10**WAVERLEY**
COUNCIL

Subject: 59 Wallangra Road, Dover Heights - Construction Zone

TRIM No: A03/2514-04

Author: Hamoon Bahari, Professional Engineer, Traffic and Transport
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 15 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone along the frontage of 59 Wallangra Road, Dover Heights.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

1. Executive Summary

Council has received an application from the builder/developer at 59 Wallangra Road, Dover Heights, for the installation of a 10 metre construction zone (see Figure 1). Council officers propose the installation of a 15 metre construction zone (see Figure 2).

Council will need to exercise its delegated functions to implement the proposal.

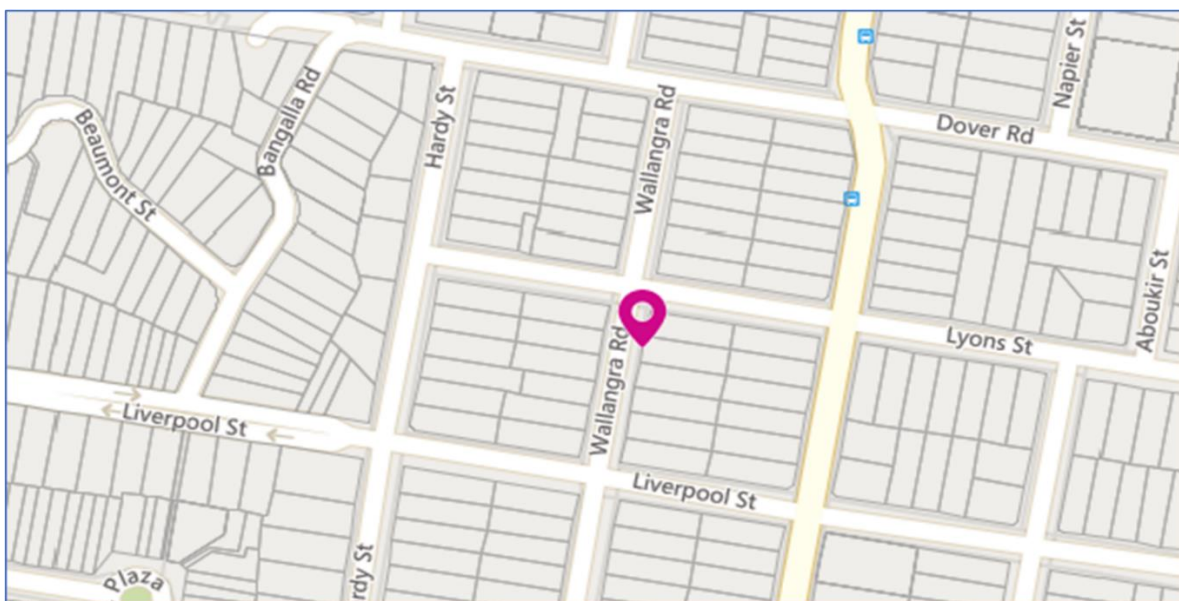


Figure 1. Site location.



Figure 2. Location to install construction zone signs.

2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

3. Technical Analysis

The existing and recommended parking allocation is shown below.

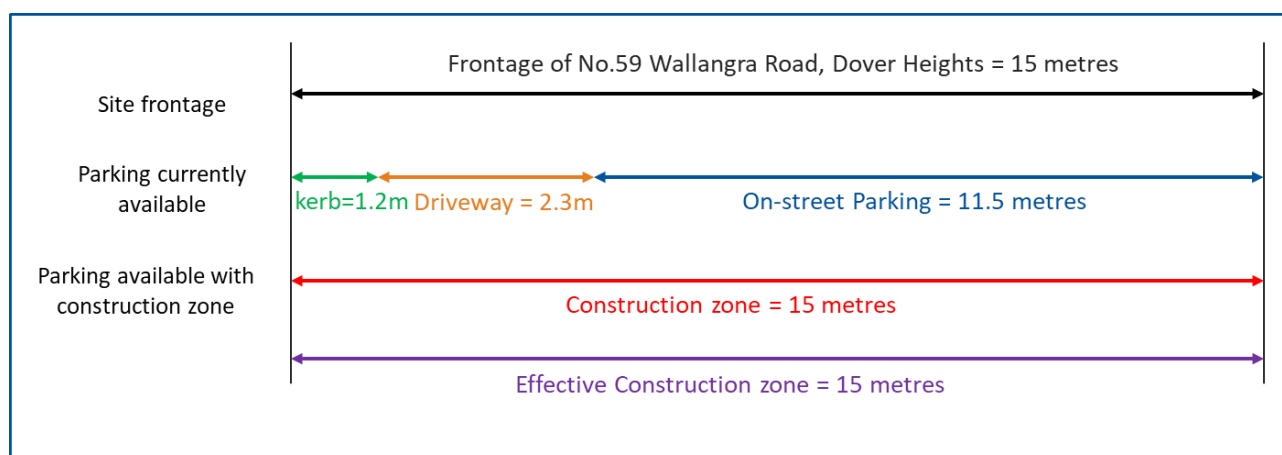


Figure 3. On-street parking allocation.

Table 1. Application details

| | |
|---------------------------------------|--|
| Applicant | Simon Semaan |
| Development application | DA-299/2020 |
| Works | Demolition of dwelling and construction of a two-storey attached dual occupancy with integrated parking, strata subdivision and swimming pool at rear. |
| Approved hours of construction | 7 am–5 pm Monday–Friday; 8 am–3 pm Saturday |
| Frontage length | 15 metres |
| Road | Wallangra Road |
| Existing parking | Unrestricted parking |
| Length requested by applicant | 10 metres |
| Length to be signposted | 15 metres (applicant has agreed to this) |
| Planned duration | 13 weeks minimum |
| Fee area | Residential with unrestricted parking |

Notification

Residents in the vicinity of the construction zone will be notified prior to it being installed. This forewarns residents/owners of the change in parking restrictions and the reason for it.

Figure 4 shows the properties to be notified about the Wallangra Road construction zone.

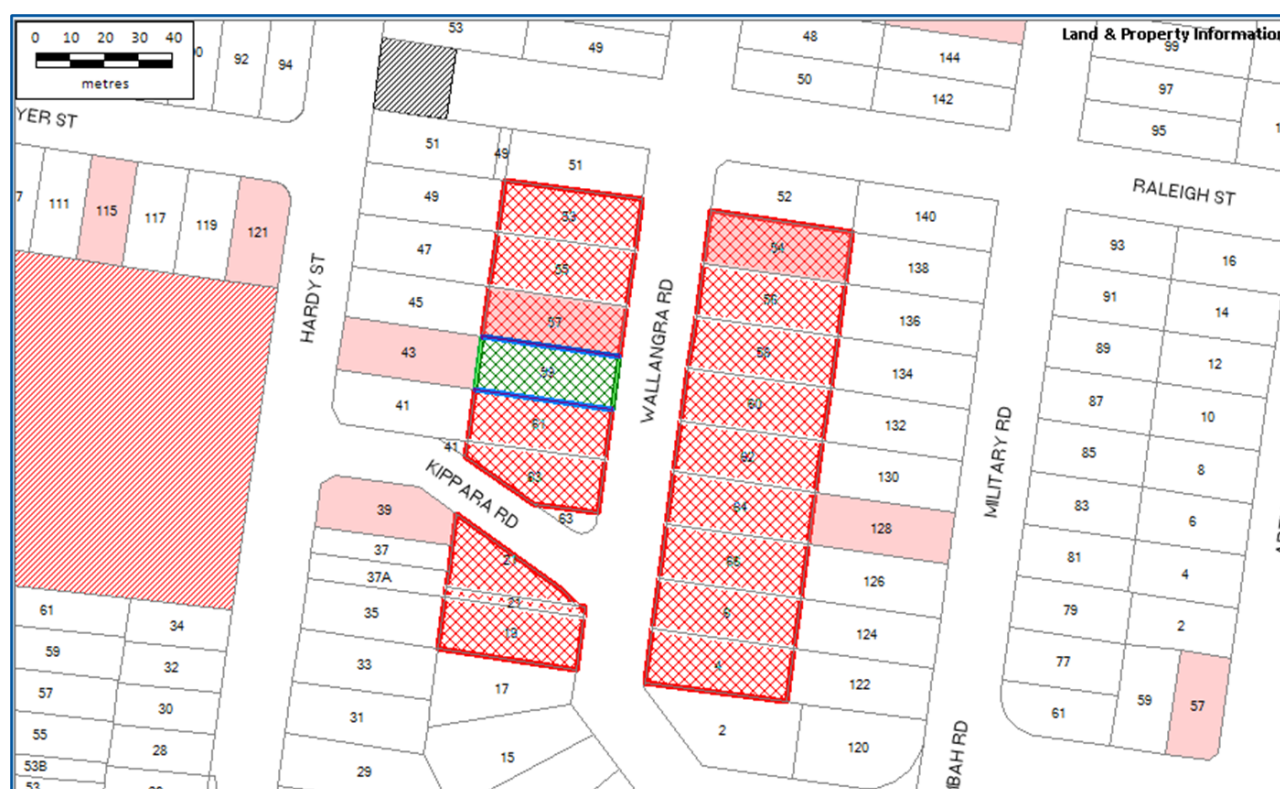


Figure 4. Notification area (hatched).

Signage

The proposed signage is shown below.

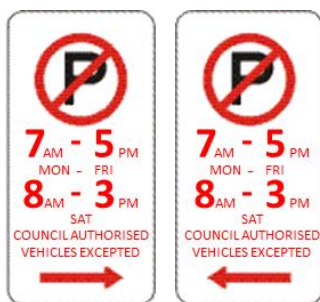


Figure 4. Proposed signage.

4. Financial Information for Council's Consideration

The estimated weekly fees for the construction zone are shown in Table 2.

Table 2. Calculation of estimated fees.

| Category | Unit | Number/ Dimensions | Rate (GST Exempt) | Fee |
|---|-----------------------|-----------------------|----------------------|-------------------|
| Fee (Areas zoned low, medium, or high density residential) | | | | |
| - Parallel parking | per metre | 15 | \$70.00 | \$1,050.00 |
| - Angle parking | per week | | \$139.00 | \$0.00 |
| Fee (Areas zoned neighbourhood centre, commercial core, or mixed use) | | | | |
| - Parallel parking | per metre | | \$97.00 | \$0.00 |
| - Angle parking | per week | | \$190.00 | \$0.00 |
| Occupation of metered parking spaces (in addition to the above fees) | per space per week | | \$387.00 | \$0.00 |
| Weekly Fee | | | | \$1,050.00 |

5. Attachments

Nil.

REPORT
TC/V.06/21.10

Subject: 157-159 Military Road, Dover Heights - Construction Zone in Blake Street

TRIM No: A03/2514-04

Author: Hamoon Bahari, Professional Engineer, Traffic and Transport
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs an 11 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction zone in Blake Street along the northern side of 157–159 Military Road, Dover Heights.
2. Notifies residents in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

1. Executive Summary

Council has received an application from the builder/developer at 157–159 Military Road, Dover Heights, for the installation of a 9 metre construction zone along the Blake Street frontage (see Figure 1). Council officers propose the installation of an 11 metre construction zone (see Figure 2).

Council will need to exercise its delegated functions to implement the proposal.

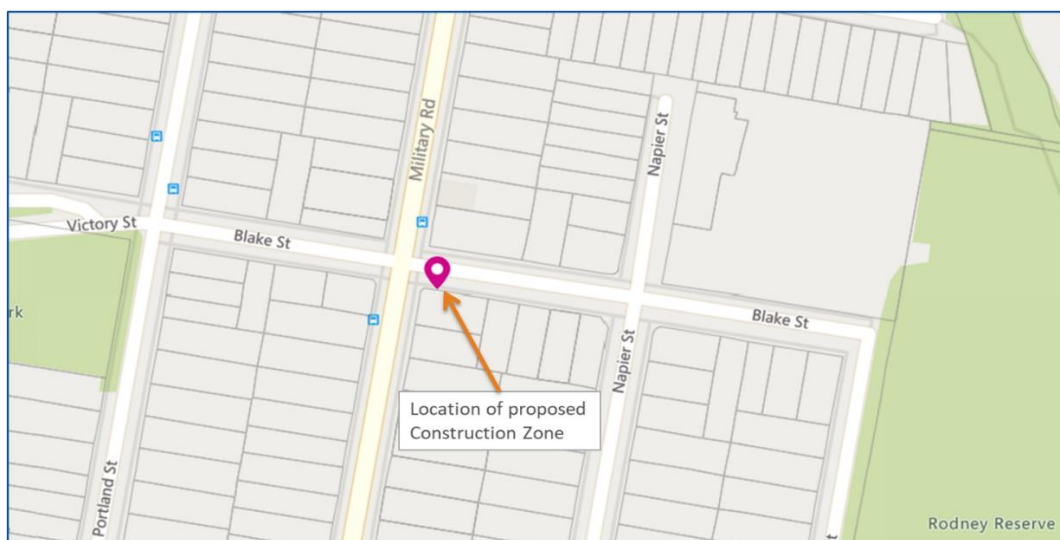


Figure 1. Site location.



Figure 2. Location to install construction zone signs.

2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

3. Technical Analysis

The existing and recommended parking allocation is shown below.

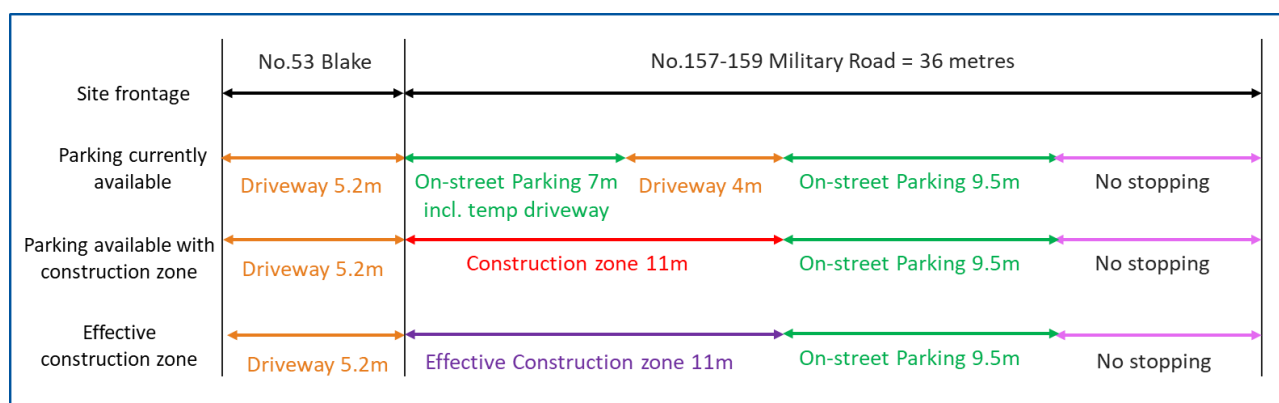


Figure 3. On-street parking allocation.

The 9.5 metre section of on-street parking can accommodate two small to medium cars. Retention of this parking benefits the surrounding retail businesses.

A temporary driveway within the 7 metre section of on-street parking has been approved for access during the construction. This driveway falls within the construction zone.

Table 1. Application details

| | |
|---|--|
| Applicant | Kevin Le |
| Development application | DA-316/2015/C |
| Works | Substantial alterations and additions to dwelling, including first floor addition, double garage and swimming pool at rear |
| Approved hours of construction | 7 am–5 pm Monday–Friday; 8 am–3 pm Saturday |
| Frontage length on Military Road | 36 metres |
| Road | Blake Street |
| Existing parking | Unrestricted parking |
| Length requested by applicant | 9 metres |
| Length to be signposted | 11 metres |
| Planned duration | 13 weeks |
| Fee area | Neighbourhood centre or mixed use |

Notification

Residents in the vicinity of the construction zone will be notified prior to it being installed. This forewarns residents/owners of the change in parking restrictions and the reason for it.

Figure 4 shows the properties to be notified about the Beach Road construction zone.



Figure 4. Notification area (hatched).

Signage

The proposed signage is shown below.

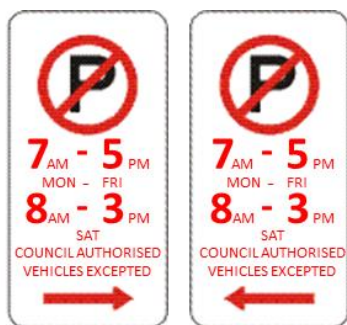


Figure 5. Proposed signage.

4. Financial Information for Council's Consideration

The estimated fees for the construction zone are shown in Table 2.

Table 2. Calculation of estimated fees.

| Category | Unit | Number/ Dimensions | Rate (GST Exempt) | Fee |
|---|-----------------------|-----------------------|----------------------|-------------------|
| Fee (Areas zoned low, medium, or high density residential) | | | | |
| - Parallel parking | per metre | | \$70.00 | \$0.00 |
| - Angle parking | per week | | \$139.00 | \$0.00 |
| Fee (Areas zoned neighbourhood centre, commercial core, or mixed use) | | | | |
| - Parallel parking | per metre | 11 | \$97.00 | \$1,067.00 |
| - Angle parking | per week | | \$190.00 | \$0.00 |
| Occupation of metered parking spaces (in addition to the above fees) | per space per week | | \$387.00 | \$0.00 |
| | | | Weekly Fee | \$1,067.00 |

5. Attachments

Nil.

REPORT

TC/V.07/21.10



Subject: 12 Burge Street, Vacluse - Construction Zone

TRIM No: A03/2514-04

Author: Hamoon Bahari, Professional Engineer, Traffic and Transport
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That Council:

1. Installs a 20 metre 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' construction along the frontage of 12 Burge Street, Vacluse.
2. Notifies businesses in the vicinity of the construction zone prior to it being installed.
3. Delegates authority to the Executive Manager, Infrastructure Services, to adjust the length and duration of, or remove, the construction zone, as necessary.

1. Executive Summary

Council has received an application from the builder/developer at 12 Burge Street, Vacluse, for the installation of a 20 metre construction zone along the frontage of the property (see Figure 1). Council officers propose the installation a 20 metre construction zone (see Figure 2).

Council will need to exercise its delegated functions to implement the proposal.

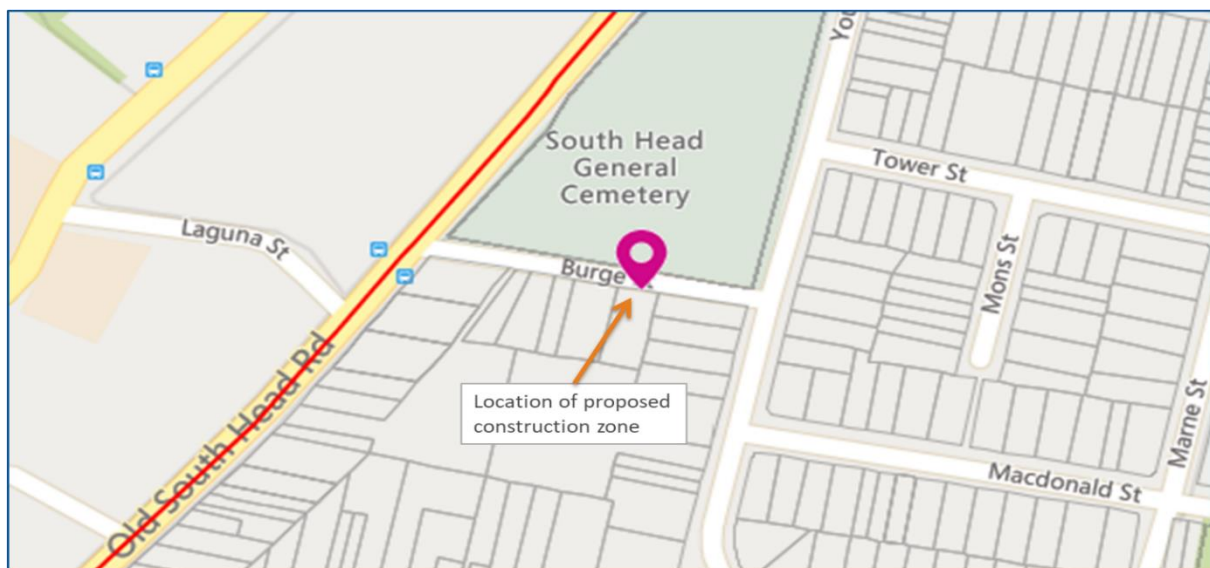


Figure 1. Site location.



Figure 2. Location to install construction zone signs.

2. Introduction/Background

In accordance with standard practice at Council, it is proposed that the construction zone is signposted 'No Parking 7 am–5 pm Mon–Fri, 8 am–3 pm Sat Council Authorised Vehicles Excepted' for the approved construction hours under the development consent. Council will then supply the applicant with transferable permits to be used on the applicant's construction vehicles. The Traffic Committee and Council's requirements for permit approvals are a minimum length of 9 metres along the site frontage with a minimum period of 13 weeks.

3. Technical Analysis

The existing and recommended parking allocation is shown below.

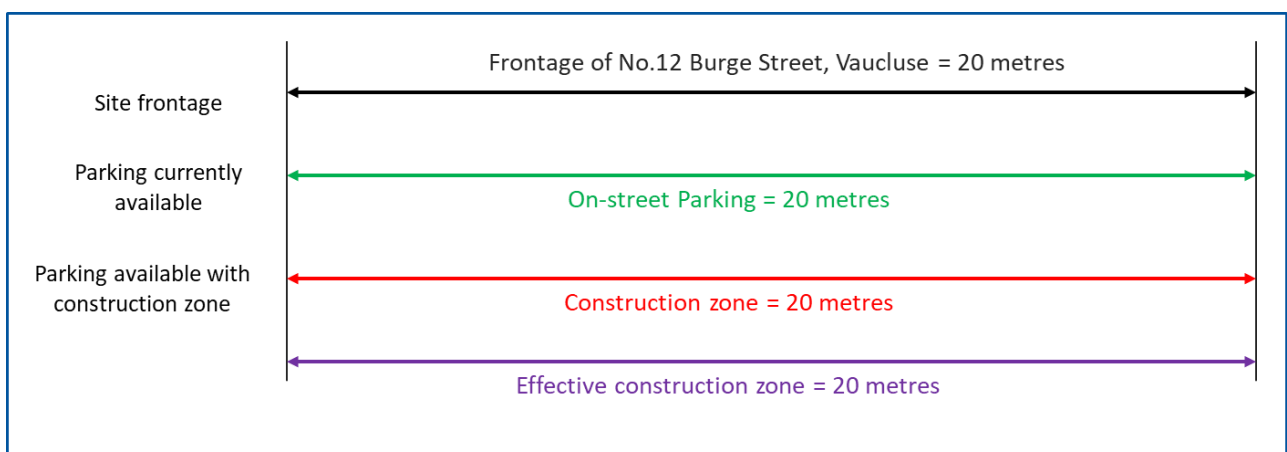


Figure 3. On-street parking for site frontage only.

Table 1. Application details.

| | |
|---|--|
| Applicant | Jonathan Ryan |
| Development application | DA-325/2020 |
| Works | Demolition of existing building and construction of a residential flat building containing 7 units over basement carparking and Strata Subdivision |
| Approved hours of construction | 7 am–5 pm Monday–Friday; 8 am–3 pm Saturday |
| Frontage length | 20 metres |
| Road | Burge Street |
| Existing parking | Unrestricted |
| Length requested by applicant | 20 metres |
| Length to be signposted | 20 metres |
| Effective construction zone - Total length available | 20 metres |
| Planned duration | 12 months |
| Fee area | Residential with unrestricted parking |

Signage

The proposed signage is shown below.

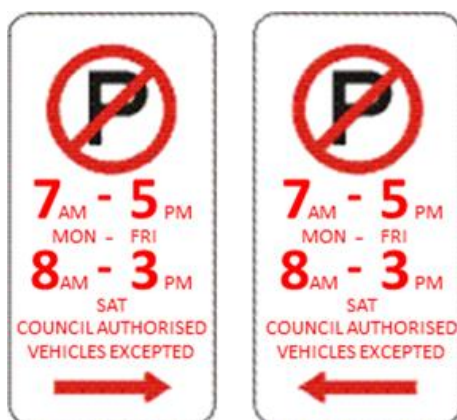


Figure 4. Proposed signage.

Notification

Residents in the vicinity of the construction zone will be notified prior to it being installed. This forewarns residents/owners of the change in parking restrictions and the reason for it.

Figure 5 shows the properties to be notified about the Burge Street construction zone.



Figure 5. Notification area (hatched).

4. Financial Information for Council's Consideration

The estimated weekly fees for the construction zone are shown in Table 2.

| Category | Unit | Number/ Dimensions | Rate (GST Exempt) | Fee |
|---|-----------|-----------------------|----------------------|-------------------|
| Fee (Areas zoned low, medium, or high density residential) | | | | |
| - Parallel parking | per metre | 20 | \$70.00 | \$1,400.00 |
| - Angle parking | per week | | \$139.00 | \$0.00 |
| Fee (Areas zoned neighbourhood centre, commercial core, or mixed use) | | | | |
| - Parallel parking | per metre | | \$97.00 | \$0.00 |
| - Angle parking | per week | | \$190.00 | \$0.00 |
| Occupation of metered parking spaces (in addition to the above fees) | per space | | \$387.00 | \$0.00 |
| | | | Weekly Fee | \$1,400.00 |

5. Attachments

Nil.

REPORT
TC/TEAV.01/21.10

Subject: Mitchell Street, North Bondi - Pick-up/Drop-off Zones for Reddam House School

TRIM No: DA-213/2021

Author: Paul Cai, Traffic Engineer
Calum Hutcheson, Service Manager, Traffic and Transport

Authoriser: Dan Joannides, Executive Manager, Infrastructure Services

COUNCIL OFFICER'S PROPOSAL:

That:

1. Should DA-213/2021 be approved for the expansion of Reddam House School onto adjoining land at 60C Blair Street, North Bondi:
 - (a) Installation of a 22 metre pick-up/drop-off zone on the western side of Mitchell Street, north of the existing 'No Parking, Wedding or Funeral Vehicles Excepted' zone, before and after school hours is acceptable.
 - (b) The zone would be signposted as 'No Parking 8 am–9.30 am, 2.30 pm–4 pm, School Days', with parking to be unrestricted outside these hours.
 - (c) The 22 metre pick-up/drop-off zone and the 'No Parking, Wedding or Funeral Vehicles Excepted' zone would include 'Kiss and Ride Area' signage, noting that Kiss and Ride signs are not a 'prescribed traffic control device' and may be installed by Council on the network it manages without seeking Traffic Committee or written approval from Transport for NSW.
2. Changes to the parking restrictions in the vicinity of the site will be subject to a separate report to the Traffic Committee should the development be approved, and the proposal will be assessed on its merits at that time.

1. Executive Summary

A development application (DA-213/2021) has been lodged with Council for the expansion of the existing Reddam House School onto adjacent land at 60C Blair Street, North Bondi. The campus currently accommodates students in years 10 to 12. Some students who transfer between the campus and the Reddam House school on Edgecliff Road via shuttle bus to attend courses.

The proposal involves an increase in the student population from 450 to 745 by adding 295 Year 8 and Year 9 students to the campus.

This report is being submitted to the Traffic Committee for advice regarding the provision of kerb-side pick-up/drop-off facilities on the western side of Mitchell Street opposite the main entry of the school.

It is proposed to signpost the existing 22 metres of unrestricted parking on the western side of Mitchell Street as 'No Parking 8 am–9.30 am, 2.30 pm–4 pm, School Days'. This parking zone is located immediately

adjoining the northern end of the existing 'No Parking, Wedding and Funeral Vehicles Excepted' restriction zone.

'Kiss and Ride Area' signs are recommended to be installed as a supplementary sign. The 'Kiss and Ride Area' signs would encompass the No Parking and Wedding/Funeral zones.

The existing and proposed parking controls on Mitchell Street between Blair Street and Oakley Road are shown in Figure 1.



Figure 1. Existing and proposed parking controls in Mitchell Street outside Reddam House School.

2. Introduction/Background

Reddam House Senior School is located at 56 Mitchell Street, North Bondi. It provides education for approximately 450 students between Years 10 and 12. A development application has been submitted to Council seeking approval for alterations and additions to existing school and change of use from a place of public worship to an educational establishment at the adjoining land located at 60C Blair Street, North Bondi.

The proposed development seeks to increase the number of students from 450 to 745 and increase the staff number by 15.

Staff parking requirements will be satisfied by the school providing car parking spaces in the nearby Pacific Bondi Car Park at 180 Campbell Parade. A shuttle bus service will be provided between the school and the remote parking.

Parking on site or on street for students or drop-off/pick-up is not currently provided. An existing 8 metre 'P15 minutes, 8.30 am–3.30 pm, School Days Only' parking zone located in front of the school on the eastern side of Mitchell Street was installed to cater to the school shuttle buses.

Applicant's proposed pick-up and drop-off facilities

A traffic and parking assessment report and a supplementary traffic and parking advice prepared by McLaren Traffic Engineering have been submitted to Council for the development application (copies attached).

Based on the travel mode surveys undertaken in mid-March 2020, the traffic assessment suggests that the additional student population will require 6–9 spaces on-street to accommodate for the additional pick-up and drop-off activities associated with the development.

It is proposed by the applicant to convert the following two unrestricted parking areas to 'No Parking 8 am–9.30 am, 2.30 pm–4 pm, School Days' to accommodate additional pick-up and drop-off activities:

- 22 metres unrestricted parking on the western side of Mitchell Street between the existing 'No Parking, Wedding and Funeral Vehicles Excepted' zone and Oakley Road. This will accommodate 4 car spaces.
- 30 metres along the school frontage on the northern side of Blair Street between the zebra crossing and the easter end of the driveway to the site. This area comprises a 7.5 metre 'No Stopping' zone and a 22.5 metre unrestricted kerb-side parking zone.

A plan of the proposed pick-up and drop-off facilities and associated signage submitted by the applicant is provided in Attachment 2.

3. Technical Analysis

It is essential for the school to provide dedicated pick-up and drop-off facilities with the additional number of students. The existing school site is not provided with any car parking areas. Pick-up and drop-off activities occur in the surrounding streets.

The school campus has frontages to Blair Street, Mitchell Street and Oakley Road. Due to the carriageway width of Oakley Road and the high traffic volumes in Blair Street, it will have relatively less impacts for the pick-up and drop-off activities to occur in Mitchell Street.

In accordance with traffic rules, drivers can stop at 'No Parking' areas for no more than 2 minutes to pick up and drop off passengers legally. Signs posted 'No Parking, 8 am–9.30 am, 2.30 pm–4 pm, School Days' in the existing unrestricted parking zone on the western side of Mitchell Street will provide an efficient and safe drop-off and pick-up area during busy times at the beginning and end of the school day. Parking will be restricted during these time frames.

There is an existing 'No Parking, Wedding and Funeral Vehicles Excepted' zone located in the western side of the Mitchell Street opposite to the school. This area can be used by parents or carers to drop off and collect their children by car legally. The possibility of wedding or funeral occurring at the school times is not significant, thus the conflict between the two activities is low.

'Kiss and Ride Area' signs are recommended to be installed as supplementary signs with the 'No Parking' signs to indicate the school pick-up and drop-off zone.

The 22 metre 'No Parking, 8 am–9.30 am, 2.30 pm–4 pm, School Days' zone plus the 27 metres 'No Parking, Wedding and Funeral Vehicles Excepted' zone would provide about 9 car spaces. This would be sufficient to accommodate the additional students associated with the proposed development.

The pick-up and drop-off zone in Blair Street is not recommended, as it would likely encourage more parents to drive students to and from school.

4. Financial Information for Council's Consideration

Pending approval, the applicant will fund the installation of the signs.

5. Attachments

1. Traffic and Parking Assessment Report [↓](#)
2. Supplementary traffic and parking advice [↓](#)



**TRAFFIC AND PARKING IMPACT ASSESSMENT OF
EXPANSION OF REDDAM HOUSE SENIOR SCHOOL
AT 66 - 68 OAKLEY ROAD, NORTH BONDI (INCORPORATING 60 BLAIR STREET)**



**Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
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Email: admin@mclarentraffic.com.au

Division of RAMTRANS Australia ABN: 45067491678

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

210231.01FA - 18 May 2021

Development Type: Expansion of Reddam House Senior School

Site Address: 66 - 68 Oakley Road, North Bondi (Incorporating 60 Blair Street)

Prepared for: Minto Planning Services Pty Ltd

Document reference: 210231.01FA

| Status | Issue | Prepared By | Checked By | Date |
|--------|-------|-------------|------------|-------------|
| Draft | A | TS | | 6 May 2021 |
| Draft | B | TS | | 13 May 2021 |
| Draft | C | TS | | 17 May 2021 |
| Final | A | TS | | 18 May 2021 |

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1 **INTRODUCTION**

McLaren Traffic Engineering (MTE) was commissioned by *Minto Planning Services Pty Ltd* to provide a traffic and parking impact assessment of the expansion of the Reddam House Senior School at 66 - 68 Oakley Road, North Bondi (Incorporating 60 Blair Street) as shown in **Annexure A** for reference.

1.1 *Description and Scale of Development*

The proposed expansion of Reddam House Senior School includes the following characteristics relevant to traffic and parking impacts:

- Alterations and additions to the existing North Bondi campus to accommodate five additional teaching spaces;
- Alterations and additions to the heritage-listed building on the adjoining site at 60 Blair Street, North Bondi to accommodate 10 teaching spaces and ancillary facilities;
- An increase in the North Bondi student population by 295 from approximately 450 students to 745 students;
- Additional 15 staff members.

1.2 *State Environmental Planning Policy (Infrastructure) 2007*

The proposed development does qualify as a development with relevant size and/or capacity under Clause 104 of the SEPP (Infrastructure) 2007 being an 'Educational Establishment' of 50 or more students. Accordingly, formal referral to Transport for New South Wales (TfNSW) is required to be undertaken by Waverley City Council during the assessment process.

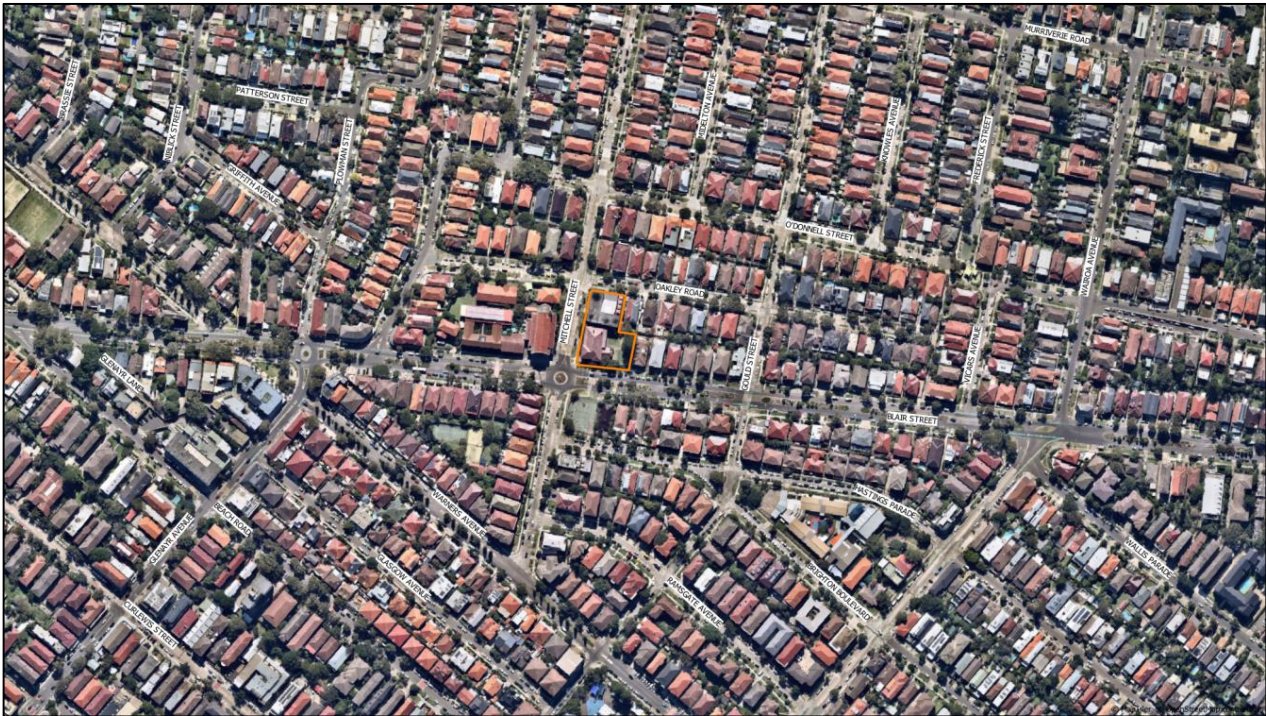
1.3 *Site Description*

The subject site is located within the Waverley Council Local Government Area and fronts three streets Oakley Road, Mitchell Street, and Blair Street.

Both sites are zoned SP2 – Infrastructure under the Waverley Council Local Environmental Plan 2012 and is generally surrounded by medium-density residential dwellings with the Galilee Catholic Primary School located directly to the west of the site.

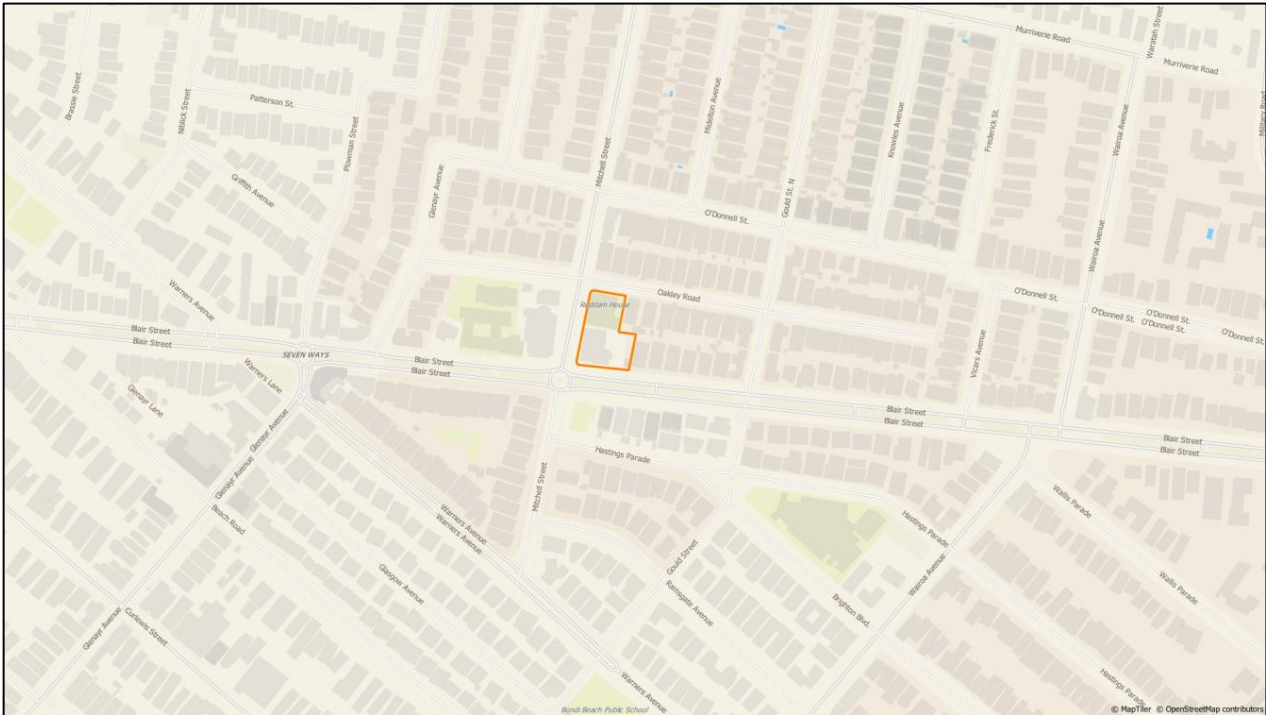
1.4 Site Context

The location of the site is shown on aerial imagery and a map in **Figure 1 & Figure 2** respectively.



 Site Location

FIGURE 1: SITE CONTEXT – AERIAL IMAGE



 Site Location

FIGURE 2: SITE CONTEXT – MAP

2 EXISTING SITE & SURROUNDING CONDITIONS

2.1 *Road Hierarchy*

The relevant characteristics of the road network servicing the site are summarised below.

2.1.1 Mitchell Street

- Unclassified Local Road;
- Approximately 10m wide carriageway facilitating one traffic and one parking lane in each direction;
- Signposted 50km/h carriageway, with a 40km/h School Zone in effect between 8-9:30 am and 2:30-4 pm on school days;
- A combination of unrestricted kerbside parking, 2-hour parking (8 am – 10 pm, Permit Holders Expected), “1/4P 8:30 AM – 3:30 PM School Days Only”, bus zones and a “No-Parking” zone with Wedding & Funeral vehicles excepted, along both sides of the road.

2.1.2 Oakley Road

- Unclassified Local Road;
- Approximately 7m wide carriageway facilitating two-way traffic flow, with passing achievable in driveways and one parking lane in each direction;
- Signposted 50km/h carriageway, with a 40km/h School Zone in effect between 8-9:30 am and 2:30-4 pm on school days;
- Unrestricted parking on both sides of the road.

2.1.3 Blair Street

- Unclassified Collector Road
- Approximately 18.5m wide carriageway facilitating one traffic lane in each direction including a bike route, separated by a 6m wide median strip, and with one parking lane in each direction.
- Signposted 50km/h carriageway, with a 40km/h School Zone in effect between 8-9:30am and 2:30-4pm on school days.
- Unrestricted parking on both sides of the road.

2.1.4 Existing Traffic Management

- “GIVE WAY” sign-controlled intersection of Mitchell Street/Oakley Road.
- Roundabout controlled intersection at Blair Street/Mitchell Street.

2.2 Public Transport

The subject site is well serviced by the 379 Route which is operated by State Transit. This service operates approximately every 10-minutes providing a direct connection to North Bondi and Bronte as well as the Bondi Junction transport Interchange, which provides connections to the other areas of the Eastern Suburbs and access to the Sydney CBD via the T4-Eastern Suburbs and Illawarra Line. **Figure 3** below outlines the local transport network surrounding the Reddam House Senior School.

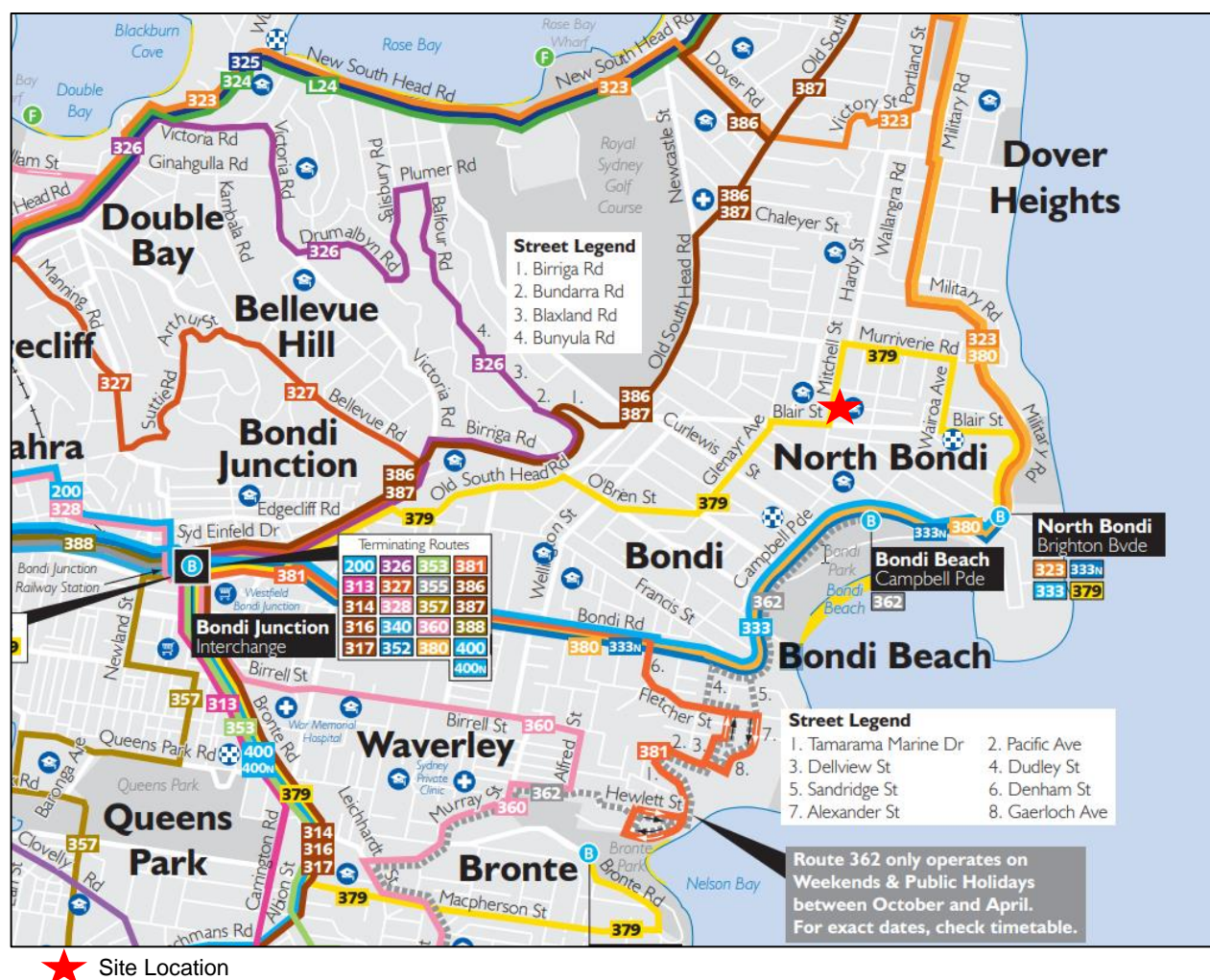


FIGURE 3: LOCAL TRANSPORT MAP

2.3 Privately Operated Bus Transport

The Reddam House School provides a private bus service six times per day between campuses using both a mini-bus (24-seat bus or similar) and a standard bus (39 seats). These services are utilised by students and staff travelling between campuses and to enable easier access to Bondi Junction Train Station, which is 550m walking distance from the Woollahra Campus.

2.4 Future Road and Infrastructure Upgrades

From the Waverley Council Development Application tracker and website, it appears that there are no future planned road or public transport changes that will affect traffic conditions within the immediate vicinity of the subject site.

2.5 Existing Transport Usage

Student and staff travel surveys were conducted between the 13th March 2020 and 18th March 2020, to capture the travel behaviour of the students and staff of the School.

A total of 424 students were surveyed, with the results of the survey outlined in **Table 1**.

TABLE 1: STUDENT TRAVEL SURVEY RESULTS

| Travel Mode | To School (%) | From School (%) |
|---------------------|---------------|-----------------|
| Public Bus | 45.0% | 52.9% |
| Walking | 16.5% | 15.8% |
| Train and Bus | 6.0% | 5.5% |
| Family Car | 20.8% | 12.9% |
| Train | 5.7% | 5.3% |
| Bicycle | 2.4% | 2.4% |
| Own Car as Driver | 1.7% | 1.4% |
| School Operated Bus | 0.7% | 1.7% |
| Friends Car | 0.7% | 1.2% |
| With Staff | 0.5% | 0.5% |

As shown, a majority proportion of students travel to and from the school on a bus (including prior train travel). Additionally, a significant proportion of students walk to school with 16.5% to school and 15.8% from school. In total, 75.6% of students use public or active transport modes to arrive at school in the morning, with 81.9% of students using public or active transport modes to travel home from school.

Only 1.7% of students drive their own car to school, there is a limited private vehicle usage associated with students at the senior college, which is typical for a school located in an area with low parking availability and high public transport accessibility.

A total of 36 staff from the School were surveyed, with the results of the survey outlined in **Table 2**.

TABLE 2: STAFF TRAVEL SURVEY RESULTS

| Travel Mode | To School (%) | From School (%) |
|---------------------|---------------|-----------------|
| Own Car as Driver | 51.4% | 51.4% |
| Public Bus | 20.0% | 17.1% |
| Family Car | 8.6% | 8.6% |
| Bicycle | 8.6% | 8.6% |
| Train | 5.7% | 5.7% |
| Walking | 2.9% | 2.9% |
| Train and Bus | 2.9% | 2.9% |
| School Operated Bus | 0% | 0% |
| Friends Car | 0% | 0% |
| With Staff | 0% | 0% |

As can be seen from the senior campus travel survey results the majority of staff drive their own car to and from the school, parking in the surrounding streets including Oakley Road, Blair Street, Gould Street and Mitchell Street. A further 28.6% of staff travel to the school using public and 25.7% of staff travelling home from the school. Only 11.5% of staff use active transport modes such as cycling or walking.

It is important to note that all surveys of staff and students were undertaken during March 2020, during the early months of the COVID-19 pandemic but before the NSW lockdown legislation was enacted. The results are therefore likely to reflect a lower-than-usual reliance on public transport due to personal safety concerns.

2.6 Existing Road Network Performance

Turning movement count surveys were undertaken on Tuesday 30 March between 7:30 AM to 9:00 AM and 2:00 PM to 4:30 PM representing a typical weekday at the following intersections:

- Old South Head Road/Curlewis Street;
- Curlewis Street/Wellington Street;
- Blair Street/Glenayr Avenue;
- Blair Street/Mitchell Street;
- Mitchell Street/Murrivier Road.

Pedestrian counts were also undertaken during the same time periods for the two pedestrian crossings either side of the Blair Street/Mitchell Street roundabout. The detailed results of the traffic counts are provided in **Annexure B**.

The existing performance of the road network during the peak hours observed has been assessed using SIDRA Intersection 9.0. A summary of the results of the modelling of the intersections under the existing traffic and pedestrian volumes is provided in **Table 3**.

TABLE 3: INTERSECTION PERFORMANCE – EXISTING VOLUMES
SIDRA 9.0

| Intersection | Peak Hour | Degree of Saturation ⁽¹⁾ | Average Delay ⁽²⁾ (sec/vehicle) | Level of Service ⁽³⁾ | Control Type | Worst Movement | Average Queue |
|---------------------------------------|-----------|-------------------------------------|---|---------------------------------|--------------|-------------------------------|--|
| EXISTING PERFORMANCE | | | | | | | |
| Blair Street / Glenayr Avenue | AM | 0.35 | N/A (Worst: 21.1) | N/A (Worst: B) | Stop | RT from Glenayr Avenue (N) | 0.5 veh (3.8m) Glenayr Avenue (N) |
| | PM | 0.32 | N/A (Worst: 19.5) | N/A (Worst: B) | | RT from Glenayr Avenue (N) | 0.4 veh (2.8m) Glenayr Avenue (N) |
| Mitchell Street / Blair Street | AM | 0.67 | 7.1 (Worst: 15) | A (Worst: B) | Roundabout | UT from Mitchell Street (S) | 1.4 veh (10m) Blair Street (E) |
| | PM | 0.44 | 5.6 (Worst: 13.9) | A (Worst: A) | | UT from Mitchell Street (N) | 1.1 veh (7.7m) Blair Street (W) |
| Mitchell Street / Murrivier Road | AM | 0.36 | 5.9 (Worst: 16.5) | NA (Worst: B) | Give Way | RT from Mitchell Street | 1.8 veh (13.3m) Mitchell Street |
| | PM | 0.31 | 5.7 (Worst: 13.9) | NA (Worst: A) | | RT from Mitchell Street | 1.4 veh (10.5m) Mitchell Street |
| Old South Head Road / Curlewis Street | AM | 0.96 | 53.3 | D | Signals | LT from Curlewis Street (E) | 19.0 veh (136.5m) Old South Head Road (N) |
| | PM | 0.90 | 45.3 | D | | RT from Curlewis Street (E) | 16.1 veh (117.2m) Old South Head Road (N) |
| Wellington Street / Curlewis Street | AM | 0.61 | 9.1 (Worst: 15) | A (Worst: B) | Roundabout | RT from Wellington Street (S) | 2.1 veh (14.7m) Wellington Street (N) |
| | PM | 0.51 | 9.2 (Worst: 13.4) | A (Worst: A) | | RT from Wellington Street (S) | 1.8 veh (13.1m) Wellington Street (N) |

NOTES:

(1) Degree of Saturation is the ratio of demand to capacity for the most disadvantaged movement.

(2) Average delay is the delay experienced on average by all vehicles. The value in brackets represents the delay to the most disadvantaged movement.

(3) Level of Service is a qualitative measure of performance describing operational conditions. There are six levels of service, designated from A to F, with A representing the best operational condition and level of service F the worst. The LoS of the intersection is shown in bold, and the LoS of the most disadvantaged movement is shown in brackets.

(4) No overall Level of Service is provided for Give Way and Stop controlled intersections as the low delays associated with the dominant movements skew the average delay of the intersection. The Level of Service of the worst approach is an indicator of the operation of the intersection, with a worse Level of Service corresponding to long delays and reduced safety outcomes for that approach.

As shown above, the intersections surrounding the site are generally operating with a high level of efficiency, with Level of Service of “A” or “B” indicating surplus capacity. The intersection of Old South Head Road and Curlewis Street is approaching its practical capacity, with a Level of Service of “D” and degree of saturation of 0.9 or over. Detailed SIDRA output reports are provided in **Annexure C**.

3 PARKING IMPACT ASSESSMENT

3.1 Council Parking Requirement

Reference is made to the Waverley Council Development Control Plan (2012) which outlines that the proposed development is situated within *Parking Provision Zone 2*. The DCP does not provide any specific parking rates for educational establishments.

It is reasonable to adopt rates of parking provision based on the results travel mode surveys undertaken, which reflected that up to 65% of staff and 1.7% of students drive to the site.

An additional 295 students will result in an increase of 15 staff members, of which 10 could be expected to drive to and from work based on the travel mode survey results. A total of 10 car parking spaces are proposed in a satellite parking arrangement, meeting the likely demand.

It is not the school's policy to encourage students to drive to and from school and no car parking is proposed for student use, consistent with the present operation of the school.

3.1.1 Operation of Satellite Parking Arrangement

Parking for staff is proposed in the nearby Pacific Bondi Car Park at 180 Campbell Parade operated by Wilson Car Parking, approximately 600m walk from the Senior School campus. An agreement with Wilson Car Parking has been made for the long-term lease of 10 car parking spaces between the hours of 8:00 AM and 5:00 PM, Monday to Friday during school terms.

To facilitate easy access for staff between the car park and the school, shuttle bus service will be provided which will provide regular transport between the school and the car park in the morning and afternoon, as well as on-demand during the day when required.

3.1.2 Kiss and Drop Facilities

To provide for increased capacity for the dropping off and picking up of students, it is proposed that "No Parking 7:30 AM – 9:00 AM & 2:30 PM – 4:00 PM School Days Only" restrictions be applied to the western side of Mitchell Street, opposite the main campus of the school. This is illustrated in **Figure 4**.

The additional "No Parking" would provide for approximately 5 additional spaces for kiss and drop activities to occur during the morning and afternoon peak times, but would not affect the supply of car parking outside of peak school drop-off and pick-up times.

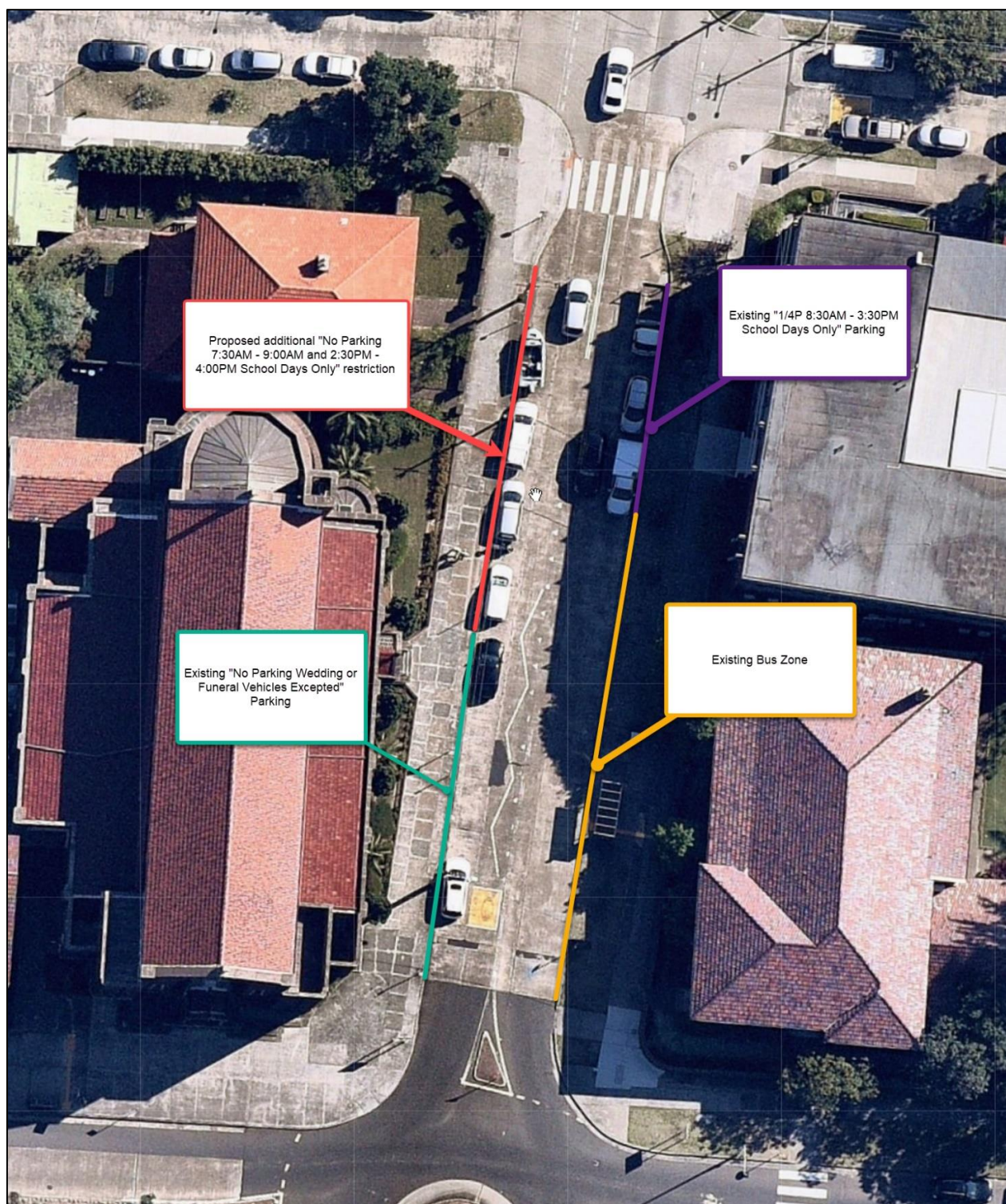


FIGURE 4: EXISTING AND PROPOSED PARKING RESTRICTIONS

3.2 **Bicycle & Motorcycle Parking Requirements**

3.2.1 Bicycle Storage

The Waverly Council DCP provides a rate for the provision of bicycle storage facilities for educational land uses, stating the following:

Education (primary, secondary, tertiary)

Employee

0.3 spaces per staff

Student

0.3 spaces per student

The resulting parking requirement is provided in **Table 4**.

TABLE 4: DCP BICYCLE PARKING REQUIREMENTS

| Land Use | Type | Scale | Rate | Spaces Required |
|--------------|----------|-------|-----------------------------|-----------------|
| School | Staff | 15 | 0.3 spaces per staff member | 5 |
| | Students | 295 | 0.3 spaces per student | 89 |
| Total | | | | 94 |

In accordance with the above requirement, the proposed school requires 94 bicycle parking spaces to meet the councils DCP requirements. The proposed school extension in total provides 94 bicycle parking spaces.

3.2.2 Motorcycle Parking

The *Waverly Council DCP* provides a standard motorcycle parking requirement which states the following:

1 motorcycle parking bay per 3 car parking bays (including visitor)

As the proposed development does not provide any on-site car parking bays there is no requirement for the proposed school extension to provide motorcycle spaces and the nil provision is considered acceptable.

3.3 **Servicing & Loading**

Waste collection operations for the Reddam House school are presently undertaken once per day from Oakley Street at the back of the main campus building, alternating between recycling and general waste. This operation is expected to continue unchanged post-development of the adjacent site. There is limited demand for other servicing trips, with up to three per week presently by light commercial vehicles (vans or similar) using the existing "1/4P 8:30 AM – 3:30 PM School Days Only" restricted parking along the Mitchell Street frontage of the site.

The Waverley Council DCP does not provide a specific requirement for loading facilities for schools and specifies that a merit-based assessment should be applied. The proposed alterations and additions do not include any facilities that would be significant generators for either waste or deliveries. The loading and servicing practices of the school will be unchanged as a result of the proposed development and the addition of dedicated facilities is therefore not required.

3.4 Disabled Parking

The Building Code of Australia (BCA) classifies the assembly hall of a school as a 9b building and provides the following disabled parking requirement:

Class 9b

an assembly building, including a trade workshop, laboratory or the like in a primary or secondary school, but excluding any other parts of the building that are of another Class

(a) School 1 space for every 100 car parking spaces or part thereof.

As the design does not provide any on-site parking spaces there is no requirement to provide car parking spaces for disabled persons. No on-site parking spaces for disabled persons are proposed, however, parking for disabled persons will be provided off-site as part of the provision of satellite parking. A vehicle with wheelchair facilities will be available to provide transport between the satellite car park and the school when required.

4 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

4.1 *Traffic Generation*

The results of student and staff surveys as outlined previously within **Section 2.5**, outline a relatively low private vehicle usage for the existing Reddam School senior campus. These surveys indicate a current private vehicle usage rate of 2.8% for Students and 50.1% for staff.

With a planned increase of 295 students and 15 staff, it can be expected that these rates of private vehicle usage will continue and as such this will result in the traffic generation as outlined in **Table 5**.

TABLE 5: ESTIMATED TRAFFIC GENERATION

| Type | AM | | | | PM | | | |
|-----------------------------|--------------------------------------|--------------|-------|-----|-----------------------|--------------|-------|-----|
| | Rate | Scale | Trips | | Rate | Scale | Trips | |
| | | | IN | OUT | | | IN | OUT |
| Student (Own Car as Driver) | 1.7% per student x 1 | 295 students | 5 | 0 | 1.4% per student x 1 | 295 students | 0 | 4 |
| Student (Family Car) | 20.8% per student x 2 | | 61 | 61 | 12.9% per student x 2 | | 38 | 38 |
| Student (Friend’s Car) | 1.4% per student x 1 | | 2 | 2 | 1.2% per student x 1 | | 2 | 2 |
| Student (With Staff) | 0.5% per student x 1 | | 1 | 0 | 0.5% per student x 1 | | 0 | 1 |
| Staff (Own Car as Driver) | 51.4% per staff x 1 | 15 staff | 7 | 0 | 51.4% per staff x 1 | 15 staff | 0 | 7 |
| Staff (Family Car) | 8.6% per staff x 2 | | 1 | 1 | 8.6% per staff x 2 | | 1 | 1 |
| Total Additional Cars | - | - | 78 | 65 | - | - | 41 | 54 |
| | - | - | 143 | | - | - | 95 | |
| Additional Buses | 1 per 78 students x 2 ⁽¹⁾ | 295 students | 4 | 4 | 1 per 66 students x 2 | 295 students | 5 | 5 |
| | | | 8 | | | | 10 | |

Notes:

- (1) Based on a total bus capacity of 50 persons and assuming that up to 70% of the persons on the bus would be students. If 45% of students use the bus to travel to school. $(50 \times 0.7) / 0.45 = 78$ students per extra bus required.

As shown, the total additional light vehicle traffic generation associated with the proposed development has been estimated as 143 trips in the AM peak hour (78 IN/65 OUT) and 95 trips in the PM peak hour (41 IN/54 OUT). Based on an addition of 295 students and the existing reliance on buses to travel to and from the school, it has been estimated that an additional four buses will be required during the AM peak hour and an additional five buses in the PM peak hour. Ultimately and as outlined in **Section 4.4** the bus operator will determine how many additional bus services are required and the estimation above has been provided for the purposes of traffic impact assessment only.

As noted in **Section 2.5**, the travel mode surveys undertaken to inform the above traffic generation estimate were undertaken during the early months of the COVID-19 pandemic and may reflect a lower-than-usual usage of public transport facilities.

Further, it is the intent of the school to improve the uptake of alternative travel modes through the implementation of a Green Travel Plan which will be submitted as part of the development application package.

4.2 Traffic Distribution

Based on the existing road network and locations of surrounding residential and commercial precincts, the traffic distribution illustrated in **Figure 5** has been assumed.

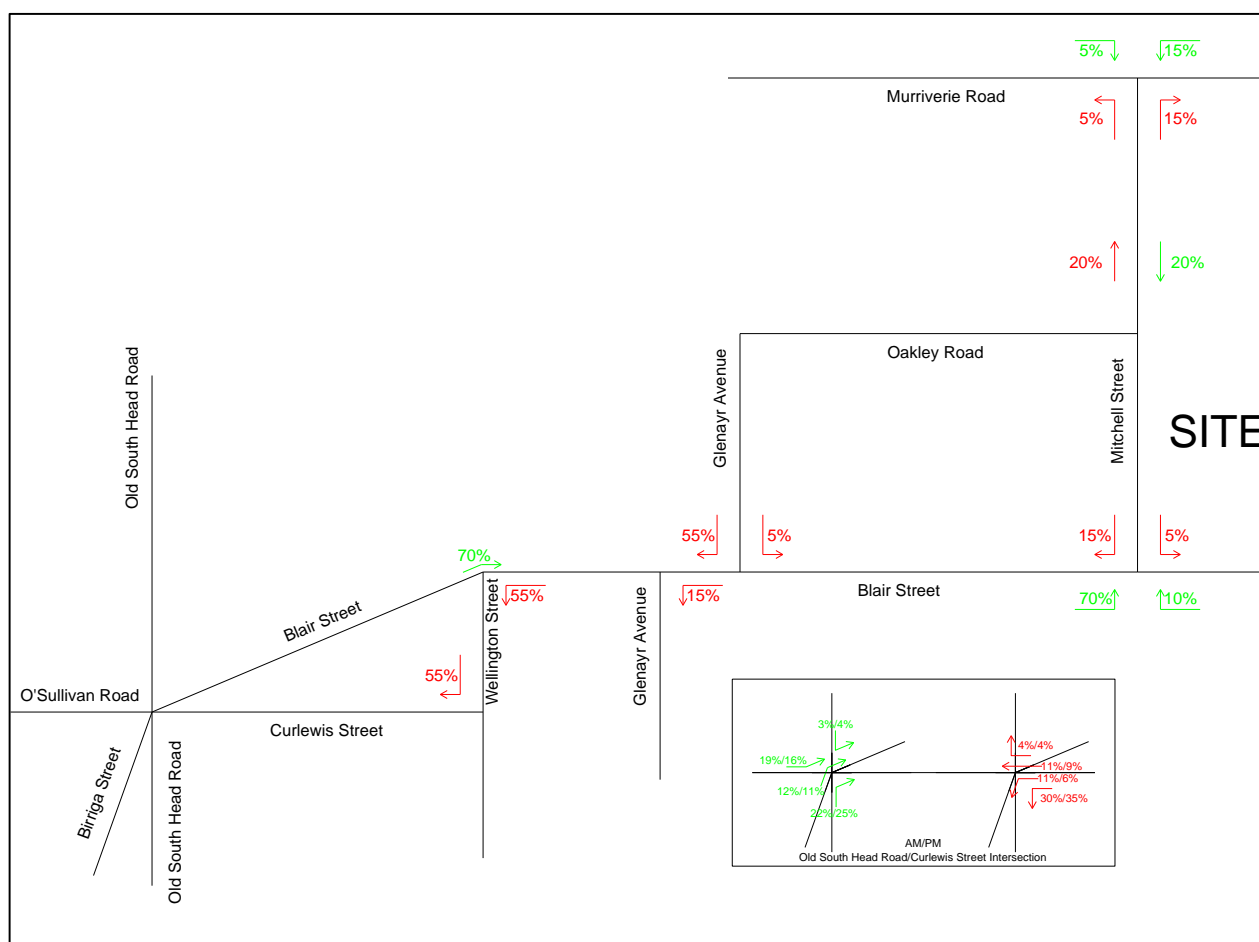


FIGURE 5: TRAFFIC DISTRIBUTION

4.3 Traffic Impacts

The estimated traffic generation of the site of 143 trips in the AM peak hour and 95 trips in the PM peak hour has been added to the existing road network volumes as per the distribution outlined in **Figure 5** and modelled using SIDRA Intersection 9.0. The results of the modelling are summarised in **Table 6**, with the detailed output reports provided in **Annexure D**.

The results of the modelling indicate that there will be only minor increases to average delays at the intersections modelled. The only change in Level of Service at any of the intersections is a result of a 4.9 second increase in average delay at the Old South Head Road/Curlewis Street intersection in the AM peak hour. Whilst the increase in average delay has resulted in an average delay of over 56 seconds (resulting in a change of Level of Service from “D” to “E”), it is minor and unlikely to have a noticeable effect on the road network.

Considering that the proposed development is an increase in the scale of an existing school, rather than a new school, it is unlikely that there will be any significant impacts to amenity in the surrounding streets.

4.4 Public Transport Capacity

The local bus operator (State Transit Authority) and Transport for New South Wales (TfNSW) have been contacted to provide comment on the proposal, with specific reference to whether there would be a need for additional public transport services post-development. A representative from the State Transit Authority responded to indicate that the existing high-frequency bus Route 379 provided adequate capacity for the present operations of the school and that the frequency of buses on this route will increase proportional to patronage. The relevant correspondence is provided in **Annexure E** for reference.

It is therefore understood that the school will be adequately served by the existing public transport services post-development.

TABLE 6: INTERSECTION PERFORMANCE – EXISTING + DEVELOPMENT VOLUMES

| Intersection | Peak Hour | Degree of Saturation ⁽¹⁾ | Average Delay ⁽²⁾ (sec/vehicle) | Level of Service ⁽³⁾ | Control Type | Worst Movement | Average Queue |
|-------------------------------------|-----------|-------------------------------------|---|---------------------------------|--------------|-------------------------------|--|
| EXISTING PERFORMANCE | | | | | | | |
| Blair Street / Glenayr Avenue | AM | 0.35 | NA (Worst: 21.1) | N/A (Worst: B) | Stop | RT from Glenayr Avenue (N) | 0.5 veh (3.8m) Glenayr Avenue (N) |
| | PM | 0.32 | NA (Worst: 19.5) | N/A (Worst: B) | | RT from Glenayr Avenue (N) | 0.4 veh (2.8m) Glenayr Avenue (N) |
| Mitchell Street / Blair Street | AM | 0.67 | 7.1 (Worst: 15) | A (Worst: B) | Roundabout | UT from Mitchell Street (S) | 1.4 veh (10m) Blair Street (E) |
| | PM | 0.44 | 5.6 (Worst: 13.9) | A (Worst: A) | | UT from Mitchell Street (N) | 1.1 veh (7.7m) Blair Street (W) |
| Mitchell Street /Murriverie Road | AM | 0.36 | 5.9 (Worst: 16.5) | NA (Worst: B) | Give Way | RT from Mitchell Street | 1.8 veh (13.3m) Mitchell Street |
| | PM | 0.31 | 5.7 (Worst: 13.9) | NA (Worst: A) | | RT from Mitchell Street | 1.4 veh (10.5m) Mitchell Street |
| Old South Head Road/Curlewis Street | AM | 0.96 | 53.3 | D | Signals | LT from Curlewis Street (E) | 19.0 veh (136.5m) Old South Head Road (N) |
| | PM | 0.90 | 45.3 | D | | RT from Curlewis Street (E) | 16.1 veh (117.2m) Old South Head Road (N) |
| Wellington Street / Curlewis Street | AM | 0.61 | 9.1 (Worst: 15) | A (Worst: B) | Roundabout | RT from Wellington Street (S) | 2.1 veh (14.7m) Wellington Street (N) |
| | PM | 0.51 | 9.2 (Worst: 13.4) | A (Worst: A) | | RT from Wellington Street (S) | 1.8 veh (13.1m) Wellington Street (N) |
| FUTURE PERFORMANCE | | | | | | | |
| Blair Street / Glenayr Avenue | AM | 0.54 | 3.4 (Worst: 26.1) | N/A (Worst: B) | Stop | RT from Glenayr Avenue (N) | 0.9 veh (6.6m) Glenayr Avenue (N) |
| | PM | 0.41 | 2.9 (Worst: 22.3) | N/A (Worst: B) | | RT from Glenayr Avenue (N) | 0.6 veh (4.5m) Glenayr Avenue (N) |
| Mitchell Street / Blair Street | AM | 0.83 | 9.1 (Worst: 19.3) | A (Worst: B) | Roundabout | UT from Blair Street (E) | 1.4 veh (10m) Blair Street (E) |
| | PM | 0.85 | 14.4 (Worst: 22.3) | A (Worst: B) | | UT from Blair Street (W) | 4.2 veh (30.2m) Blair Street (W) |
| Mitchell Street /Murriverie Road | AM | 0.39 | 6.2 (Worst: 17.2) | NA (Worst: B) | Stop | RT from Mitchell Street | 2 veh (14.9m) Mitchell Street |
| | PM | 0.33 | 5.9 (Worst: 14.5) | NA (Worst: B) | | RT from Mitchell Street | 1.6 veh (11.9m) Mitchell Street |
| Old South Head Road/Curlewis Street | AM | 0.95 | 58.2 | E | Signals | RT from Birriga Road (SW) | 22.3 veh (160.2m) Old South Head Road (N) |
| | PM | 0.90 | 46.1 | D | | RT from Curlewis Street (E) | 17.2 veh (124.8m) Old South Head Road (N) |
| Wellington Street / Curlewis Street | AM | 0.77 | 9.3 (Worst: 15.4) | A (Worst: B) | Roundabout | RT from Wellington Street (S) | 2.2 veh (15.7m) Wellington Street (N) |
| | PM | 0.52 | 9.3 (Worst: 13.6) | A (Worst: A) | | RT from Wellington Street (S) | 1.9 veh (13.7m) Wellington Street (N) |

Notes: See Table 3 notes.

5 **CONCLUSIONS**

The traffic and parking impacts of the proposed alterations and additions to the Reddam House Bondi Campus, as shown in **Annexure A**, have been assessed. The proposed extension to the existing school will see an increase in the student population by 295 students, with a new total population of 745 students.

Student and staff surveys were conducted and have identified a high proportion of public transport and active transport utilisation within the senior school. The school is well serviced by public transport, including the operation of a private bus service connection between the site and the Reddam House Bondi Junction Campus.

The site is heritage-listed and as a result, it is impracticable to provide on-site car parking for either staff or kiss and drop activities. A satellite car parking arrangement is proposed to accommodate all additional car parking associated with staff. A shuttle bus will be provided to transport staff to and from the satellite car parking on a regular schedule. To account for any increases in the demand for kiss and drop facilities, it is proposed the parking restrictions on the western side of Mitchell Street be adjusted to provide 5 additional kiss and drop spaces during the relevant school peak hours.

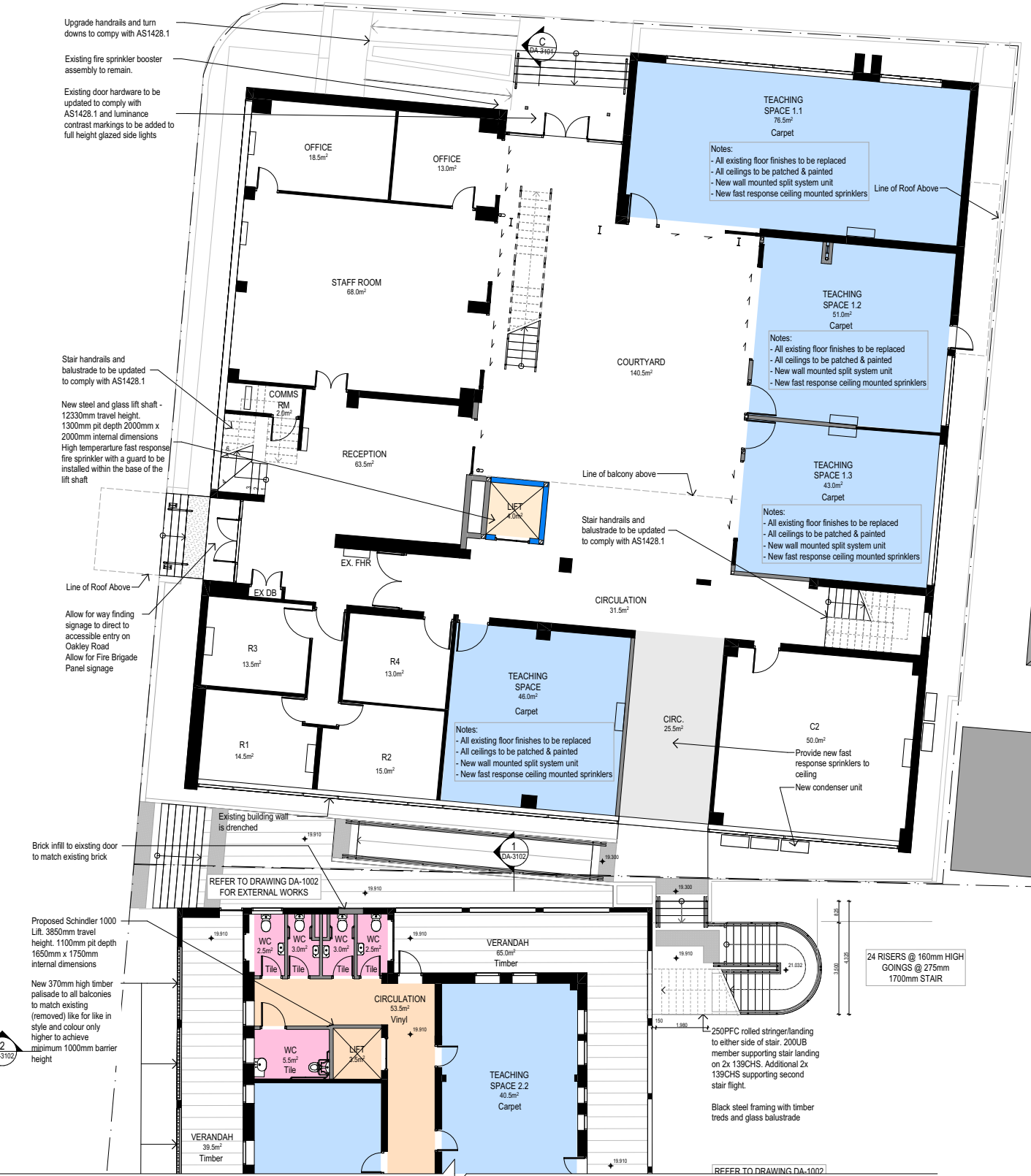
The traffic generation of the proposal has been estimated to be 143 trips in the AM peak hour (78 IN/65 OUT) and 95 trips in the PM peak hour (41 IN/54 OUT) based on the results of travel mode surveys of staff and students. The critical intersections in the surrounds of the site have been modelled using SIDRA Intersection 9.0, with the results reflecting that the additional traffic generation of the site will have no unacceptable impacts on the road network.

In view of the foregoing, the subject proposed development is fully supported in terms of its traffic and parking impacts.



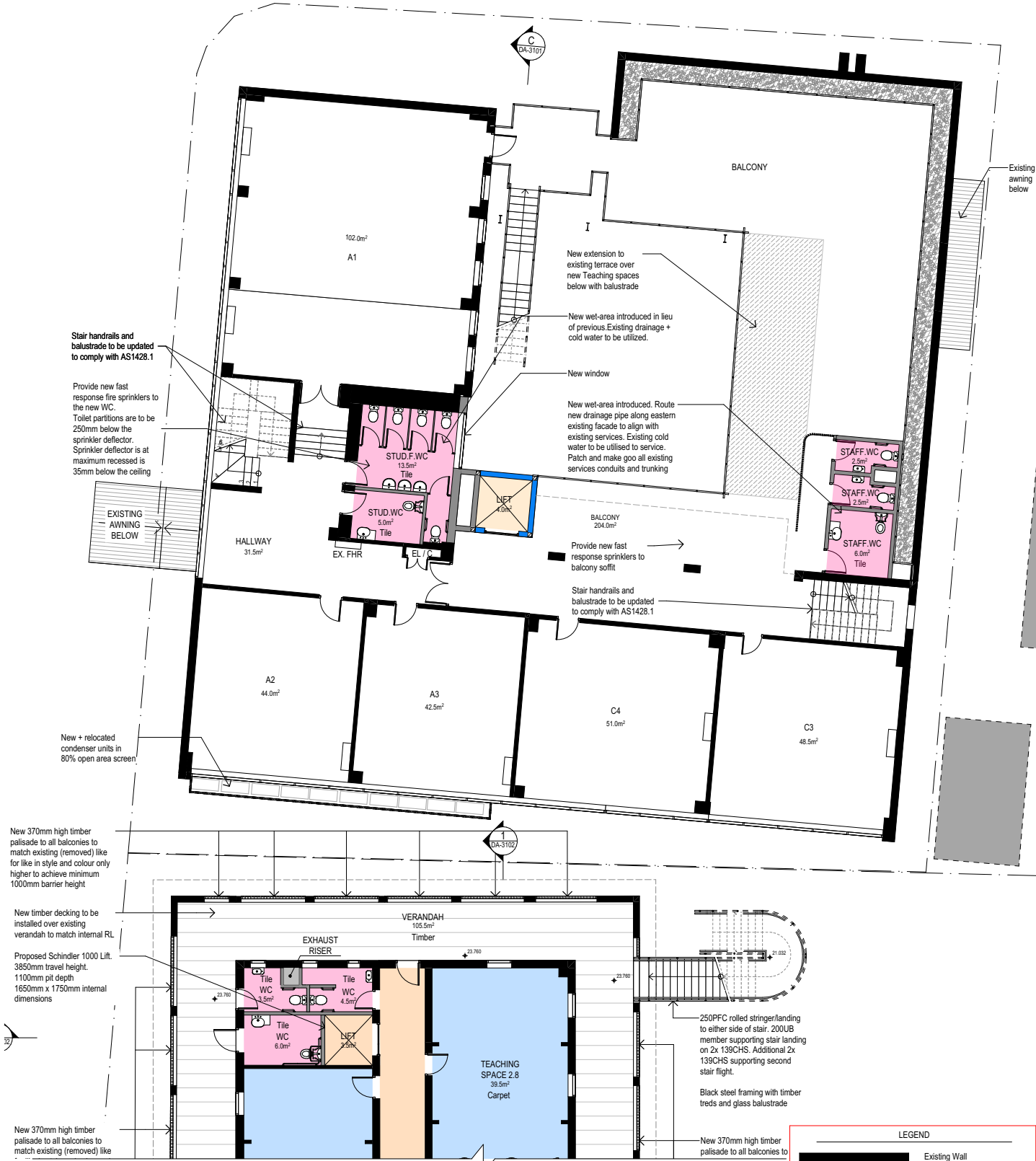
ANNEXURE A: PLANS
(4 SHEETS)





GROUND FLOOR PLAN
SCALE: 1:100

DRAWING CONTINUES ON DA-2003



FIRST FLOOR PLAN
SCALE: 1:100

DRAWING CONTINUES ON DA-2003

| LEGEND | |
|--------|--------------------------------|
| | Existing Wall |
| | Existing Wall to be Demolished |
| | Proposed Wall |
| | Proposed Glass and Steel Wall |

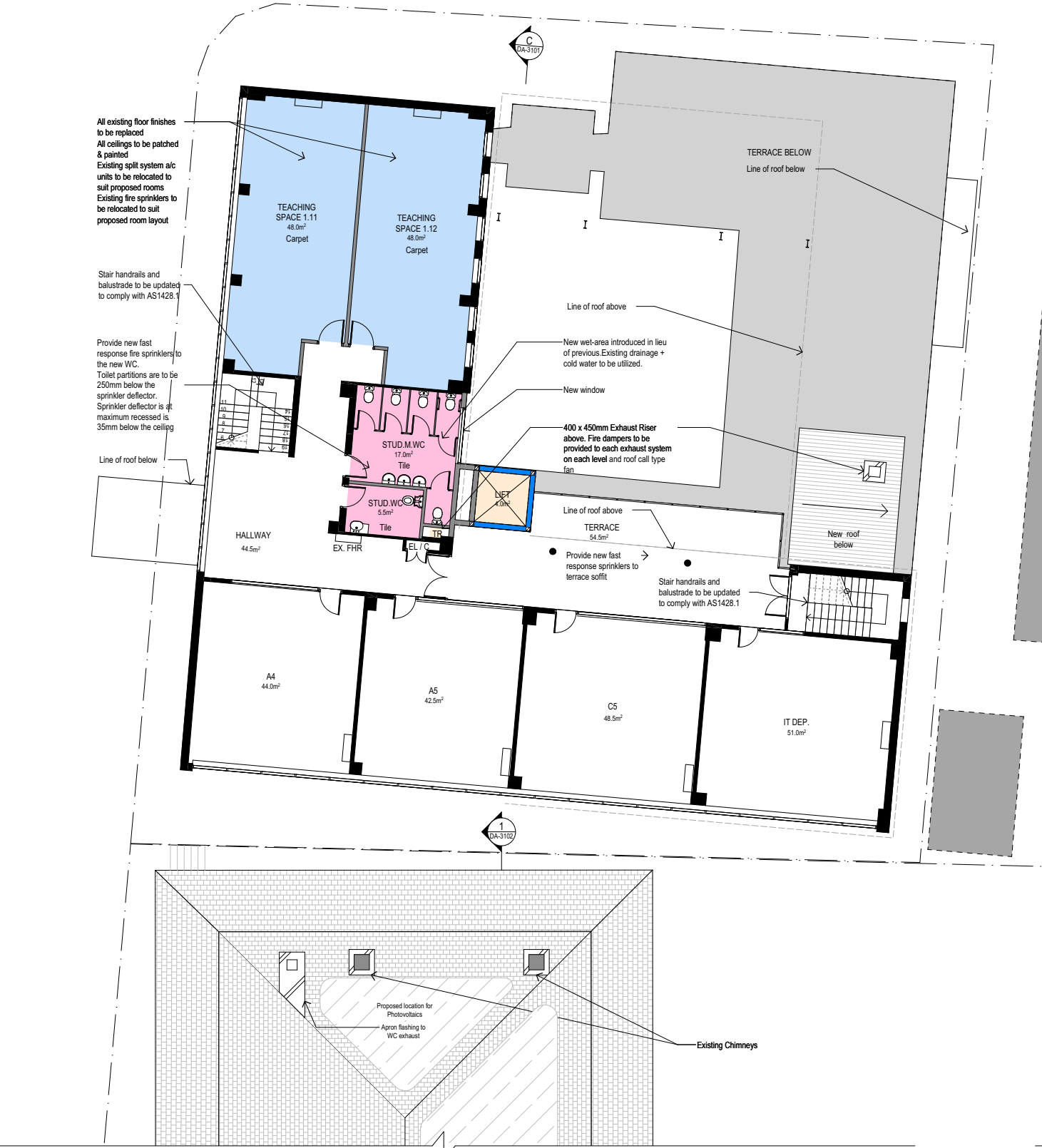
fulton trotter
ARCHITECTS



0 0.5 1 2 3 5
Scale 1:100 @ A1 10m

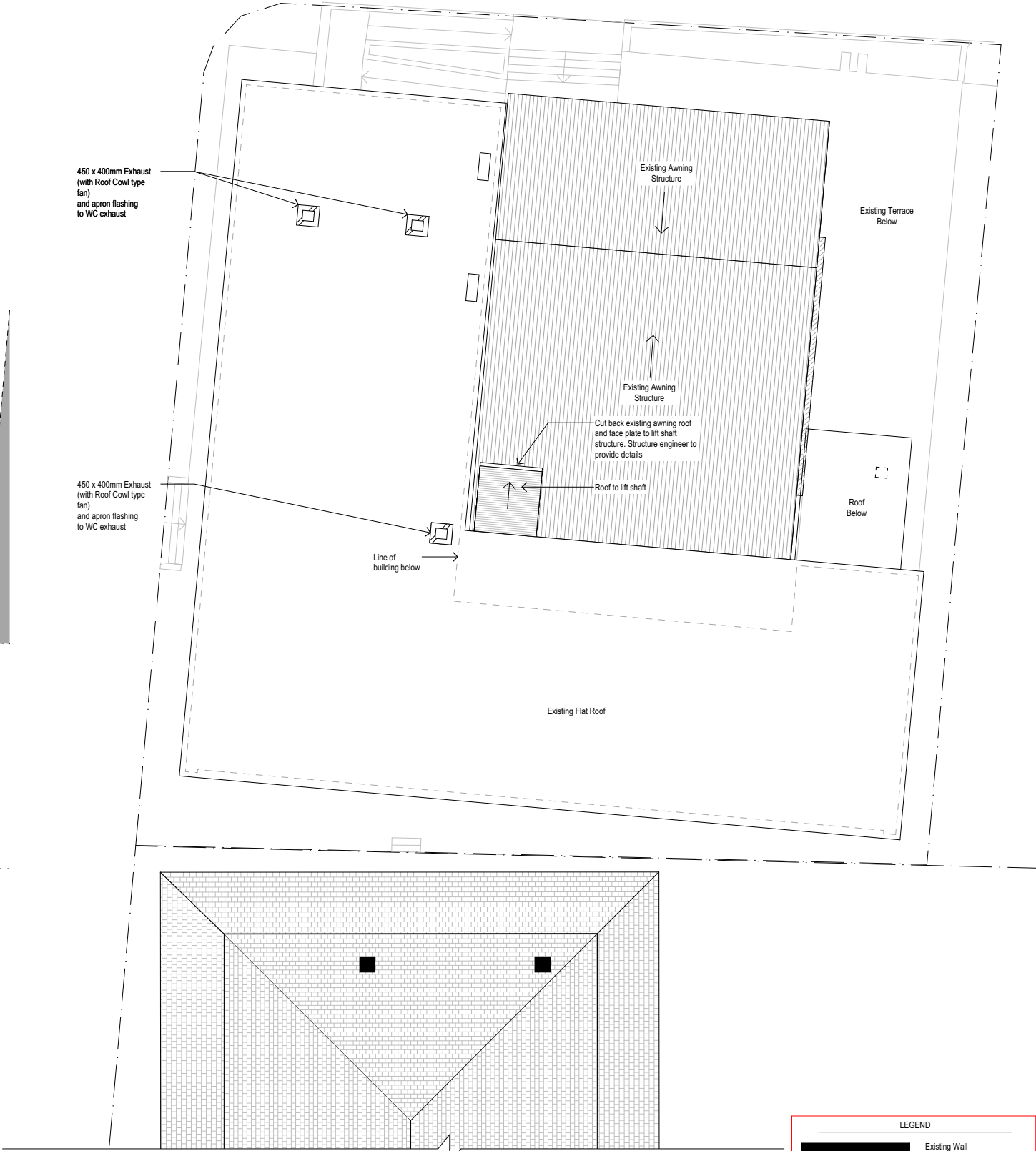
NBS1 - PROPOSED GROUND & FIRST PLAN

Reddam House School - DA Senior School Refurb & Extension for Inspired Australia Pty Ltd
60C Blair Street, North Bondi, 2026
7099NB01 - DA-2001 Rev.



SECOND FLOOR PLAN
SCALE: 1:100

DRAWING CONTINUES ON DA-2004



ROOF PLAN - NBS1
SCALE: 1:100

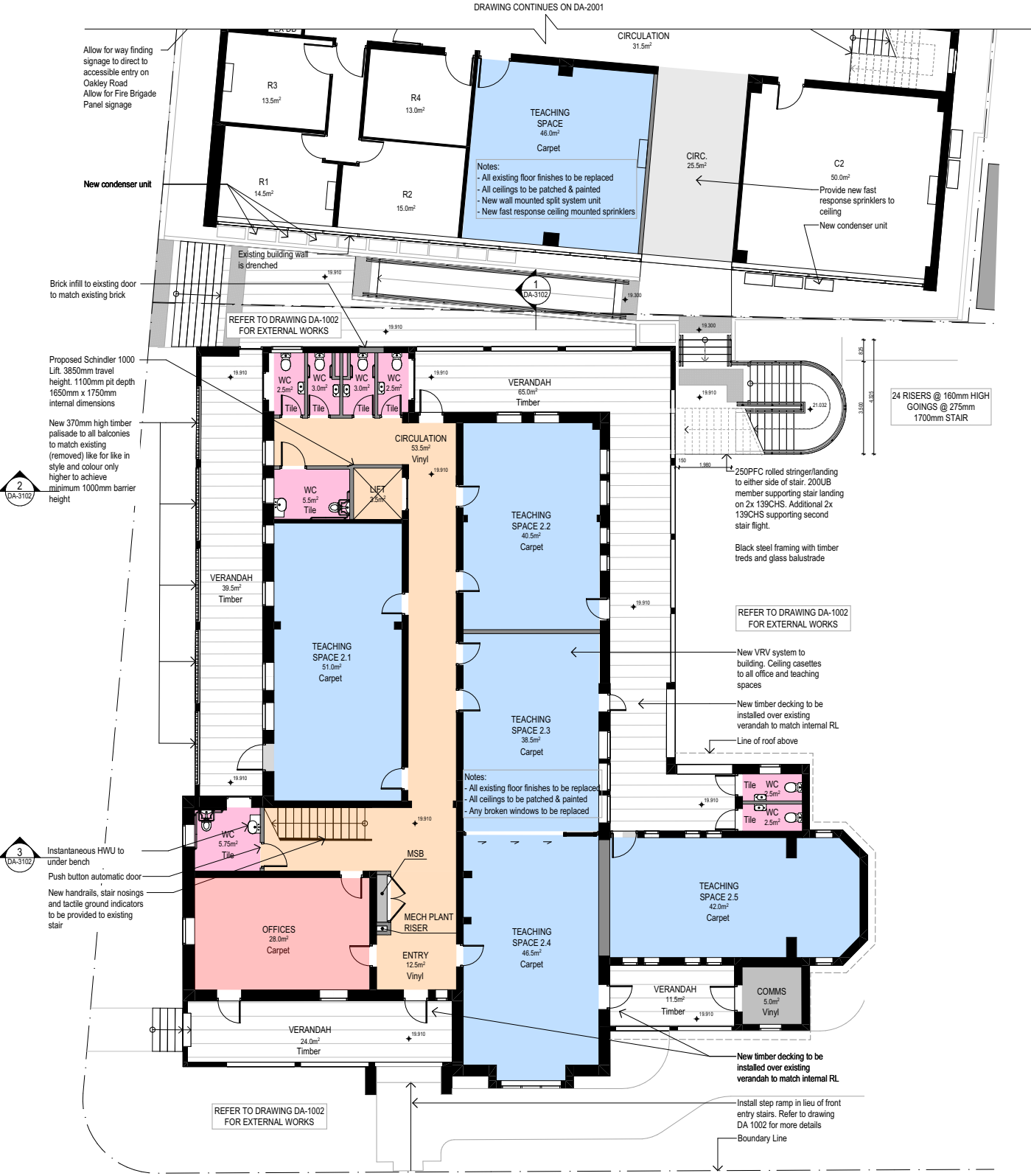
| LEGEND | |
|--------|--------------------------------|
| | Existing Wall |
| | Existing Wall to be Demolished |
| | Proposed Wall |
| | Proposed Glass and Steel Wall |

ARCHITECTS

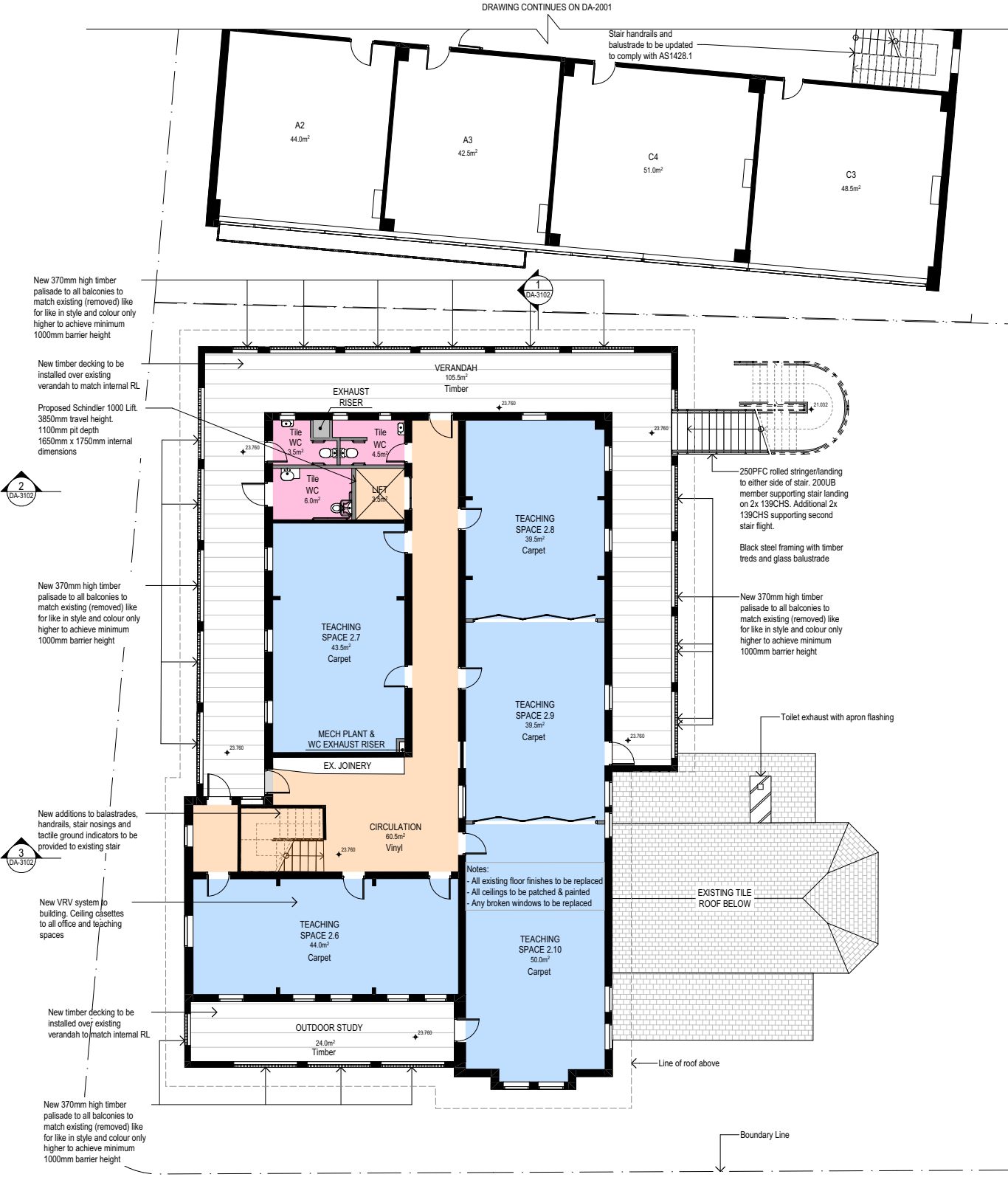
Scale 1:100 @ A1

NBS1 - PROPOSED SECOND AND ROOF PLAN

Reddam House School - DA Senior School Refurb & Extension for Inspired Australia Pty Ltd
60C Blair Street, North Bondi, 2026
7099NB01 - DA-2002 Rev.



GROUND FLOOR PLAN
SCALE: 1:100



FIRST FLOOR PLAN
SCALE: 1:100

| LEGEND | |
|--------|--------------------------------|
| | Existing Wall |
| | Existing Wall to be Demolished |
| | Proposed Wall |
| | Proposed Glass and Steel Wall |

NBS2 - PROPOSED GROUND & FIRST FLOOR PLAN

Reddam House School - DA Senior School Refurb & Extension for Inspired Australia Pty Ltd
60C Blair Street, North Bondi, 2026
7099NB01 - DA-2003 Rev.

fulton trotter
ARCHITECTS





**ANNEXURE B: TRAFFIC COUNT RESULTS
(8 SHEETS)**

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

Intersection of Curlewis Street and Old South Head Road, Bondi Beach

GPS

-33.884975, 151.267954

Date:

Tue 30/03/21

Weather:

Overcast

Suburban:

Bondi Beach

Customer:

McLaren

North:

Old South Head Road

East:

Curlewis Street

South:

Old South Head Road

South west:

Birriga Rd

West:

O'Sullivan Road

Survey

AM: 7:30 AM-9:00 AM

Period

PM: 2:00 PM-4:30 PM

Traffic

AM: 8:45 AM-9:45 AM

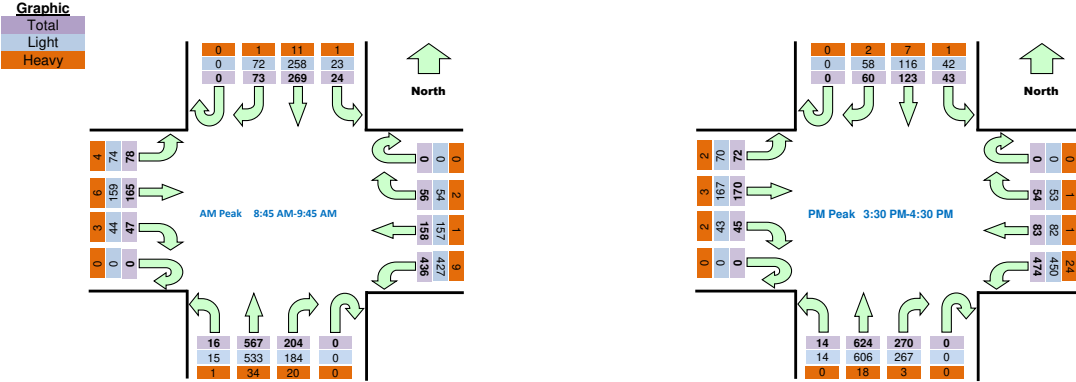
Peak

PM: 3:30 PM-4:30 PM

| Time | | North Approach Old South Head Road | | | | | East Approach Curlewis Street | | | | | South Approach Old South Head Road | | | | | South west Approach Birriga Rd | | | | | West Approach Birriga Rd | | | | | Hourly Total | |
|--------------|------------|------------------------------------|----|----|-----|----|-------------------------------|----|----|----|-----|------------------------------------|----|-----|----|----|--------------------------------|---|----|----|---|--------------------------|----|----|----|----|--------------|------|
| Period Start | Period End | U | R | FR | SB | L | U | R | WB | FL | L | U | R | NB | L | NL | U | R | FR | NB | L | U | NR | R | EB | L | Hour | Peak |
| 7:30 | 7:45 | 0 | 19 | 47 | 173 | 4 | 0 | 17 | 48 | 28 | 131 | 0 | 48 | 163 | 14 | 3 | 0 | 0 | 10 | 21 | 1 | 0 | 1 | 12 | 22 | 20 | 3202 | |
| 7:45 | 8:00 | 0 | 15 | 69 | 162 | 1 | 0 | 17 | 41 | 38 | 118 | 0 | 57 | 155 | 19 | 5 | 0 | 0 | 23 | 40 | 3 | 0 | 0 | 11 | 45 | 15 | 3222 | Peak |
| 8:00 | 8:15 | 0 | 19 | 70 | 165 | 8 | 0 | 9 | 55 | 46 | 106 | 0 | 36 | 132 | 13 | 3 | 0 | 0 | 27 | 38 | 4 | 0 | 0 | 10 | 39 | 21 | 3195 | |
| 8:15 | 8:30 | 0 | 16 | 53 | 137 | 7 | 0 | 15 | 23 | 35 | 110 | 0 | 58 | 168 | 15 | 6 | 0 | 0 | 31 | 43 | 1 | 0 | 1 | 9 | 32 | 25 | | |
| 8:30 | 8:45 | 0 | 23 | 77 | 168 | 8 | 0 | 15 | 39 | 39 | 102 | 0 | 53 | 112 | 9 | 2 | 0 | 0 | 23 | 45 | 4 | 0 | 0 | 17 | 49 | 17 | | |
| 8:45 | 9:00 | 0 | 20 | 40 | 145 | 8 | 0 | 14 | 41 | 25 | 102 | 0 | 60 | 180 | 21 | 7 | 0 | 0 | 31 | 47 | 2 | 0 | 1 | 7 | 42 | 14 | | |
| 14:00 | 14:15 | 0 | 14 | 16 | 134 | 14 | 0 | 16 | 38 | 12 | 60 | 0 | 46 | 126 | 13 | 0 | 0 | 0 | 21 | 28 | 4 | 0 | 0 | 14 | 36 | 19 | 2923 | |
| 14:15 | 14:30 | 0 | 15 | 22 | 151 | 7 | 0 | 8 | 41 | 15 | 82 | 0 | 72 | 147 | 12 | 4 | 0 | 0 | 16 | 45 | 4 | 0 | 0 | 12 | 29 | 15 | 3137 | |
| 14:30 | 14:45 | 0 | 5 | 23 | 155 | 9 | 0 | 17 | 36 | 29 | 90 | 0 | 58 | 197 | 9 | 3 | 0 | 1 | 34 | 40 | 6 | 0 | 0 | 13 | 42 | 17 | 3261 | |
| 14:45 | 15:00 | 0 | 20 | 35 | 186 | 11 | 0 | 17 | 27 | 31 | 107 | 0 | 69 | 171 | 9 | 6 | 0 | 0 | 23 | 48 | 7 | 0 | 0 | 13 | 36 | 15 | 3311 | Peak |
| 15:00 | 15:15 | 0 | 13 | 32 | 219 | 12 | 0 | 17 | 24 | 16 | 123 | 0 | 57 | 166 | 10 | 2 | 0 | 1 | 28 | 48 | 1 | 0 | 0 | 10 | 31 | 15 | 3286 | |
| 15:15 | 15:30 | 0 | 13 | 36 | 199 | 10 | 0 | 13 | 38 | 19 | 121 | 0 | 55 | 133 | 10 | 2 | 0 | 0 | 31 | 47 | 0 | 0 | 1 | 15 | 57 | 21 | 3244 | |
| 15:30 | 15:45 | 0 | 14 | 20 | 172 | 10 | 0 | 7 | 34 | 17 | 123 | 0 | 89 | 154 | 13 | 4 | 0 | 1 | 36 | 65 | 1 | 0 | 0 | 7 | 46 | 21 | 3243 | |
| 15:45 | 16:00 | 0 | 15 | 23 | 205 | 6 | 0 | 16 | 28 | 27 | 100 | 0 | 48 | 144 | 10 | 4 | 0 | 1 | 26 | 72 | 5 | 0 | 0 | 16 | 31 | 29 | | |
| 16:00 | 16:15 | 0 | 17 | 16 | 145 | 7 | 0 | 12 | 30 | 20 | 83 | 0 | 68 | 197 | 8 | 3 | 0 | 0 | 27 | 54 | 2 | 0 | 1 | 13 | 57 | 23 | | |
| 16:15 | 16:30 | 0 | 19 | 30 | 163 | 14 | 0 | 10 | 29 | 22 | 93 | 0 | 71 | 179 | 12 | 4 | 0 | 1 | 34 | 56 | 5 | 0 | 0 | 11 | 50 | 17 | | |

| Peak Time | | North Approach Old South Head Road | | | | | East Approach Curlewis Street | | | | | South Approach Old South Head Road | | | | | South west Approach Birriga Rd | | | | | West Approach Birriga Rd | | | | | Peak total | |
|--------------|------------|------------------------------------|----|-----|-----|----|-------------------------------|----|-----|-----|-----|------------------------------------|-----|-----|----|----|--------------------------------|---|-----|-----|----|--------------------------|----|----|-----|----|------------|--|
| Period Start | Period End | U | R | FR | SB | L | U | R | WB | FL | L | U | R | NB | L | NL | U | R | FR | NB | L | U | NR | R | EB | L | | |
| 7:45 | 8:45 | 0 | 73 | 269 | 632 | 24 | 0 | 56 | 158 | 158 | 436 | 0 | 204 | 567 | 56 | 16 | 0 | 0 | 104 | 166 | 12 | 0 | 1 | 47 | 165 | 78 | 3222 | |
| 14:45 | 15:45 | 0 | 60 | 123 | 776 | 43 | 0 | 54 | 123 | 83 | 474 | 0 | 270 | 624 | 42 | 14 | 0 | 2 | 118 | 208 | 9 | 0 | 1 | 45 | 170 | 72 | 3311 | |

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



| Time | | North Approach Old South Head Road | | | | | East Approach Curlewis Street | | | | | South Approach Old South Head Road | | | | | South west Approach Birriga Rd | | | | | West Approach Birriga Rd | | | | |
|--------------|------------|------------------------------------|----|----|-----|----|-------------------------------|----|----|----|-----|------------------------------------|----|-----|----|----|--------------------------------|---|----|----|---|--------------------------|----|----|----|----|
| Period Start | Period End | U | R | FR | SB | L | U | R | WB | FL | L | U | R | NB | L | NL | U | R | FR | NB | L | U | NR | R | EB | L |
| 7:30 | 7:45 | 0 | 18 | 44 | 170 | 4 | 0 | 17 | 48 | 28 | 130 | 0 | 41 | 154 | 13 | 3 | 0 | 0 | 9 | 20 | 1 | 0 | 1 | 10 | 21 | 20 |
| 7:45 | 8:00 | 0 | 15 | 68 | 154 | 0 | 0 | 17 | 40 | 37 | 117 | 0 | 51 | 144 | 18 | 4 | 0 | 0 | 22 | 37 | 3 | 0 | 0 | 10 | 44 | 14 |
| 8:00 | 8:15 | 0 | 19 | 65 | 164 | 8 | 0 | 9 | 54 | 46 | 104 | 0 | 31 | 122 | 13 | 3 | 0 | 0 | 26 | 38 | 4 | 0 | 0 | 10 | 37 | 20 |
| 8:15 | 8:30 | 0 | 16 | 50 | 136 | 7 | 0 | 14 | 22 | 35 | 108 | 0 | 54 | 160 | 14 | 6 | 0 | 0 | 31 | 39 | 1 | 0 | 1 | 8 | 31 | 24 |
| 8:30 | 8:45 | 0 | 22 | 75 | 163 | 8 | 0 | 14 | 37 | 39 | 98 | 0 | 48 | 107 | 9 | 2 | 0 | 0 | 22 | 42 | 4 | 0 | 0 | 16 | 47 | 16 |
| 8:45 | 9:00 | 0 | 19 | 38 | 142 | 7 | 0 | 14 | 39 | 25 | 100 | 0 | 54 | 169 | 21 | 7 | 0 | 0 | 30 | 44 | 2 | 0 | 0 | 7 | 41 | 14 |
| 14:00 | 14:15 | 0 | 14 | 15 | 128 | 14 | 0 | 15 | 38 | 12 | 56 | 0 | 41 | 121 | 12 | 0 | 0 | 0 | 21 | 28 | 3 | 0 | 0 | 14 | 35 | 18 |
| 14:15 | 14:30 | 0 | 14 | 21 | 144 | 7 | 0 | 8 | 41 | 15 | 78 | 0 | 70 | 136 | 10 | 4 | 0 | 0 | 16 | 44 | 4 | 0 | 0 | 12 | 27 | 14 |
| 14:30 | 14:45 | 0 | 5 | 19 | 151 | 9 | 0 | 17 | 35 | 29 | 87 | 0 | 54 | 189 | 8 | 3 | 0 | 1 | 33 | 39 | 6 | 0 | 0 | 13 | 40 | 17 |
| 14:45 | 15:00 | 0 | 18 | 33 | 176 | 11 | 0 | 17 | 27 | 30 | 101 | 0 | 68 | 165 | 9 | 6 | 0 | 0 | 22 | 46 | 7 | 0 | 0 | 12 | 35 | 14 |
| 15:00 | 15:15 | 0 | 13 | 30 | 211 | 12 | 0 | 17 | 23 | 16 | 117 | 0 | 55 | 161 | 10 | 2 | 0 | 1 | 26 | 44 | 1 | 0 | 0 | 9 | 31 | 15 |
| 15:15 | 15:30 | 0 | 13 | 35 | 197 | 10 | 0 | 12 | 38 | 19 | 114 | 0 | 55 | 129 | 8 | 2 | 0 | 0 | 31 | 45 | 0 | 0 | 1 | 15 | 56 | 21 |
| 15:30 | 15:45 | 0 | 14 | 18 | 163 | 9 | 0 | 7 | 33 | 17 | 118 | 0 | 89 | 151 | 13 | 4 | 0 | 1 | 35 | 63 | 1 | 0 | 0 | 7 | 45 | 20 |
| 15:45 | 16:00 | 0 | 14 | 22 | 199 | 6 | 0 | 16 | 28 | 27 | 96 | 0 | 48 | 141 | 10 | 4 | 0 | 1 | 26 | 66 | 5 | 0 | 0 | 14 | 30 | 28 |
| 16:00 | 16:15 | 0 | 16 | 15 | 138 | 7 | 0 | 12 | 30 | 20 | 82 | 0 | 68 | 188 | 8 | 3 | 0 | 0 | 27 | 49 | 2 | 0 | 1 | 13 | 55 | 23 |
| 16:15 | 16:30 | 0 | 19 | 27 | 151 | 14 | 0 | 9 | 29 | 22 | 89 | 0 | 67 | 176 | 12 | 4 | 0 | 1 | 34 | 54 | 5 | 0 | 0 | 11 | 48 | 16 |

| Peak Time | | North Approach Old South Head Road | | | | | East Approach Curlewis Street | | | | | South Approach Old South Head Road | | | | | South west Approach Birriga Rd | | | | | West Approach Birriga Rd | | | | | Peak total | |
|--------------|------------|------------------------------------|----|-----|-----|----|-------------------------------|----|-----|-----|-----|------------------------------------|-----|-----|----|----|--------------------------------|---|-----|-----|----|--------------------------|----|----|-----|----|------------|--|
| Period Start | Period End | U | R | FR | SB | L | U | R | WB | FL | L | U | R | NB | L | NL | U | R | FR | NB | L | U | NR | R | EB | L | | |
| 7:45 | 8:45 | 0 | 72 | 258 | 617 | 23 | 0 | 54 | 153 | 157 | 427 | 0 | 184 | 533 | 54 | 15 | 0 | 0 | 101 | 156 | 12 | 0 | 1 | 44 | 159 | 74 | 3094 | |
| 14:45 | 15:45 | 0 | 58 | 116 | 747 | 42 | 0 | 53 | 121 | 82 | 450 | 0 | 267 | 606 | 40 | 14 | 0 | 2 | 114 | 198 | 9 | 0 | 1 | 43 | 167 | 70 | 3200 | |

| Time | | North Approach Old South Head Road | | | | | East Approach Curlewis Street | | | | | South Approach Old South Head Road | | | | | South west Approach Birriga Rd | | | | | West Approach Birriga Rd | | | | | |
|--------------|------------|------------------------------------|---|----|----|---|-------------------------------|---|----|----|---|------------------------------------|---|----|---|----|--------------------------------|---|----|----|---|--------------------------|----|---|----|---|---|
| Period Start | Period End | U | R | FR | SB | L | U | R | WB | FL | L | U | R | NB | L | NL | U | R | FR | NB | L | U | NR | R | EB | L | |
| 7:30 | 7:45 | 0 | 1 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 7 | 9 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 |
| 7:45 | 8:00 | 0 | 0 | 1 | 8 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 6 | 11 | 1 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 1 | 1 | |
| 8:00 | 8:15 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 5 | 10 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | |
| 8:15 | 8:30 | 0 | 0 | 3 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 4 | 8 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 1 | 1 | |
| 8:30 | 8:45 | 0 | 1 | 2 | 5 | 0 | 0 | 1 | 2 | 0 | 4 | 0 | 5 | 5 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 2 | 1 | |
| 8:45 | 9:00 | 0 | 1 | 2 | 3 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 6 | 11 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 1 | 0 | |
| 14:00 | 14:15 | 0 | 0 | 1 | 6 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 5 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | |
| 14:15 | 14:30 | 0 | 1 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 2 | 11 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | |
| 14:30 | 14:45 | 0 | 0 | 4 | 4 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 4 | 8 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | |
| 14:45 | 15:00 | 0 | 2 | 2 | 10 | 0 | 0 | 0 | 0 | 1 | 6 | 0 | 1 | 6 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 1 | |
| 15:00 | 15:15 | 0 | 0 | 2 | 8 | 0 | 0 | 0 | 1 | 0 | 6 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | |
| 15:15 | 15:30 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | |
| 15:30 | 15:45 | 0 | 0 | 2 | 9 | 1 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 15:45 | 16:00 | 0 | 1 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 2 | 1 | 1 | |
| 16:00 | 16:15 | 0 | 1 | 1 | 7 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | |
| 16:15 | 16:30 | 0 | 0 | 3 | 12 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | |

| Time | Period | North | | East | | | South | | South West | | West | |
|-------|--------|----------------|----------------|-----------------|------------------|-----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| | | East Lane (L1) | West Lane (L2) | North Lane (L3) | Middle Lane (L2) | South Lane (L1) | East Lane (L2) | West Lane (L1) | East Lane (L2) | West Lane (L1) | South Lane (L2) | North Lane (L1) |
| 7:30 | 7:35 | 12 | 14 | 5 | 15 | | 16 | 13 | 4 | 1 | 3 | 1 |
| | | 8 | 7 | 2 | 20 | 13 | 19+ | 14+ | 1 | 0 | 5 | 2 |
| | | 16 | 17 | | | 3 | | | | | | |
| | | | | | | 7 | | | | | | |
| 7:35 | 7:40 | 18 | 18 | 2 | 20 | 3 | 14+ | 15+ | 2 | 2 | 3 | 3 |
| | | 26+ | 27+ | 1 | 21 | 7 | 18+ | 15+ | 1 | 0 | 3 | 0 |
| | | | | 5 | 20 | 2 | 19+ | 14+ | 3 | 3 | 4 | 3 |
| | | | | | | 12 | | | | | | |
| 7:40 | 7:45 | 30+ | 30+ | 4 | 20 | 13 | 10+ | 14+ | 4 | 3 | 6 | 8 |
| | | 32+ | 29+ | 2 | 20 | 1 | 9 | 15 | 2 | 3 | 3 | 4 |
| | | 28+ | 26+ | | | 9 | 12 | 12 | | | 4 | 1 |
| | | | | | | 2 | | | | | | |
| 7:45 | 7:50 | | | | | 11 | | | | | | |
| | | 26+ | 24+ | 3 | 18 | 2 | 9+ | 12+ | 7 | 3 | 2 | 2 |
| | | 26+ | 27+ | 3 | 21 | 13 | 18+ | 15+ | 4 | 0 | 5 | 6 |
| | | | | 1 | 21 | 2 | | | 2 | 2 | | |
| 7:50 | 7:55 | | | | | 12 | | | | | | |
| | | 27+ | 25+ | 4 | 20 | 7 | 20+ | 15+ | 5 | 2 | 8 | 6 |
| | | 28 | 28+ | 4 | 20 | 19 | 13+ | 18+ | 5 | 1 | 7 | 5 |
| | | 31+ | 31+ | | | 6 | | | | | | |
| 7:55 | 8:00 | | | | | | | | | | | |
| | | 31+ | 30+ | 3 | 20 | 3 | 14 | 14 | 4 | 5 | 3 | 7 |
| | | 30+ | 30+ | 3 | 19 | 7 | 8 | 15 | 5 | 3 | 3 | 4 |
| | | | | 2 | 20 | | 16+ | 15+ | 10 | 7 | 2 | 4 |
| 8:00 | 8:05 | | | | | | | | | | | |
| | | 28 | 30+ | 3 | 19 | 5 | 14 | 14 | 7 | 5 | 4 | 2 |
| | | 31+ | 30+ | 2 | 20 | 8 | 16 | 15 | 5 | 4 | 3 | 1 |
| | | 24 | 29 | | | 5 | 13 | 16 | | | | |
| 8:05 | 8:10 | | | | | | | | | | | |
| | | 28 | 29+ | 2 | 20 | 1 | 12 | 18 | 4 | 3 | 4 | 3 |
| | | 28 | 30+ | 0 | 20 | 7 | 13 | 13 | 7 | 1 | 7 | 5 |
| | | | | 3 | 20 | | | | 5 | 4 | 2 | 1 |
| 8:10 | 8:15 | | | | | | | | | | | |
| | | 27 | 30+ | 2 | 20 | 4 | 13 | 14 | 6 | 4 | 2 | 1 |
| | | 31+ | 29+ | 3 | 20 | 8 | 10 | 9 | 6 | 4 | 2 | 4 |
| | | 32+ | 29+ | | | 17 | | | | | | |
| 8:15 | 8:20 | | | | | | | | | | | |
| | | 28+ | 32+ | 5 | 14 | 3 | 19 | 17 | 6 | 4 | 2 | 2 |
| | | 30+ | 31+ | 2 | 6 | 1 | 14 | 14 | 5 | 3 | 3 | 4 |
| | | | | 1 | | | | | | | | |
| 8:20 | 8:25 | | | | | | | | | | | |
| | | | | | | 4 | | | | | | |
| | | 30+ | 30+ | 2 | 4 | 6 | 23 | 16 | 6 | 4 | 3 | 2 |
| | | 31+ | 29+ | 1 | 6 | 1 | 20 | 17 | 4 | 5 | 3 | 3 |
| 8:25 | 8:30 | | | | | | | | | | | |
| | | 28+ | 30+ | | | 4 | | | | | | |
| | | | | | | 6 | | | | | | |
| | | | | | | | | | | | | |
| 8:30 | 8:35 | | | | | | | | | | | |
| | | 32+ | 26+ | 2 | 7 | 2 | 16+ | 17+ | 6 | 3 | 3 | 7 |
| | | 31+ | 29+ | 2 | 19 | 5 | 15 | 14 | 5 | 4 | 6 | 6 |
| | | | | 0 | 19 | 2 | 8 | 10 | 5 | 1 | 13 | 3 |
| 8:35 | 8:40 | | | | | | | | | | | |
| | | | | | | 2 | | | | | | |
| | | 31+ | 32+ | 3 | 19 | 3 | 14 | 5 | 7 | 2 | 17 | 4 |
| | | 30+ | 32+ | 1 | 20 | 1 | 10 | 16 | 5 | 4 | 13 | 5 |
| 8:40 | 8:45 | | | | | | | | | | | |
| | | 20 | 29+ | | | 11 | | | | | | |
| | | | | | | 8 | | | | | | |
| | | | | | | | | | | | | |
| 8:45 | 8:50 | | | | | | | | | | | |
| | | 23+ | 23+ | 2 | 20 | 2 | 13 | 12 | 6 | 7 | 17+ | 5 |
| | | 21+ | 24 | 4 | 21 | 1 | 11 | 10 | 7 | 2 | 16+ | 5 |
| | | | | 6 | 11 | 4 | 13 | 5 | 5 | 3 | 14 | 5 |
| 8:50 | 8:55 | | | | | | | | | | | |
| | | 30 | 28+ | 5 | 7 | 6 | 18 | 14 | 5 | 3 | 6 | 5 |
| | | 27+ | 30+ | 4 | 9 | 8 | 18+ | 18+ | 9 | 5 | 6 | 5 |
| | | 27+ | 31+ | | | 9 | 14+ | 16+ | | | | |
| 8:55 | 9:00 | | | | | | | | | | | |
| | | 25 | 30+ | 3 | 9 | 4 | 18+ | 19+ | 6 | 1 | 5 | 5 |
| | | 20 | 22 | 2 | 7 | 4 | 21+ | 17+ | 5 | 6 | 4 | 3 |
| | | | | 2 | 6 | | | | 6 | 3 | 2 | 3 |
| 9:00 | 9:05 | | | | | | | | | | | |
| | | 22 | 30+ | 4 | 7 | 3 | 17+ | 14+ | 7 | 3 | 3 | 5 |
| | | 20 | 20 | 4 | 13 | 5 | 21 | 22 | 8 | 6 | 3 | 5 |
| | | 25 | 26 | | | 3 | 16 | 18+ | | | | |
| 9:05 | 9:10 | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | 27 | 30+ | 4 | 14 | 3 | 16+ | 14 | 5 | 3 | 5 | 4 |
| | | 31+ | 31+ | 6 | 5 | 12 | 17 | 21 | 11 | 4 | 5 | 6 |
| 9:10 | 9:15 | | | | | | | | | | | |
| | | | | 4 | 18 | | | | 4 | 3 | 3 | 6 |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 14:00 | 14:05 | | | | | | | | | | | |
| | | 9 | 11 | 2 | 10 | 3 | 15 | 15 | 7 | 5 | 4 | 6 |
| | | 11 | 13 | 2 | 4 | 1 | 16 | 13 | 7 | 4 | 2 | 1 |
| | | 15 | 16 | 1 | 6 | | | | | | | |
| 14:05 | 14:10 | | | | | | | | | | | |
| | | 12 | 10 | 3 | 5 | 7 | 7 | 9 | 5 | 5 | 6 | 4 |
| | | 10 | 14 | 3 | 5 | 1 | 15 | 13 | 6 | 4 | 3 | 3 |
| | | | | 1 | 12 | 5 | 14 | 12 | 5 | 4 | 3 | 7 |
| 14:10 | 14:15 | | | | | | | | | | | |
| | | 9 | 12 | 2 | 5 | 6 | 12 | 10 | 2 | 2 | 5 | 2 |
| | | 12 | 13 | 3 | 6 | 1 | 16 | 18 | 4 | 3 | 2 | 2 |
| | | 18 | 18 | | | 6 | 13 | 11 | | | | |
| 14:15 | 14:20 | | | | | | | | | | | |
| | | 20 | 18 | 2 | 6 | 3 | 13 | 15 | 4 | 1 | 3 | 6 |
| | | 25 | 15 | 1 | 6 | 6 | 13 | 15 | 4 | 3 | 1 | 3 |
| | | | | 0 | 5 | | | | 5 | 4 | 4 | 2 |
| 14:20 | 14:25 | | | | | | | | | | | |
| | | 30+ | 31+ | 4 | 9 | 5 | 18 | 18 | 7 | 6 | 2 | 3 |
| | | 28+ | 28+ | 1 | 9 | 2 | 15 | 11 | 9 | 9 | 7 | 6 |
| | | 28+ | 29+ | | | 2 | 20 | 20 | | | | |
| 14:25 | 14:30 | | | | | | | | | | | |
| | | 30+ | 30+ | 5 | 8 | 5 | 17 | 16+ | 5 | 6 | 7 | 6 |
| | | 28 | 28+ | 6 | 6 | 4 | 20+ | 12+ | 7 | 5 | 8 | 5 |
| | | | | | | 9 | | | 7 | 7 | | |
| 14:30 | 14:35 | | | | | | | | | | | |
| | | 9 | 11 | 2 | 19 | 11 | 13+ | 17+ | 5 | 2 | 4 | 7 |
| | | 10 | 10 | 3 | 19 | 6 | 17+ | 16+ | 5 | 5 | 6 | 3 |
| | | 10 | 12 | 1 | 21 | | | | | | 9 | 4 |
| 14:35 | 14:40 | | | | | | | | | | | |
| | | 9 | 8 | 2 | 21 | 6 | 16+ | 18+ | 6 | 4 | 3 | 7 |
| | | 13 | 12 | 5 | 20 | 5 | 23+ | 21+ | 10 | 0 | 4 | 4 |
| | | | | | | 5 | 20+ | 20+ | | | | |
| 14:40 | 14:45 | | | | | | | | | | | |
| | | 24 | 20 | 6 | 13 | 1 | 20+ | 20+ | 9 | 6 | 2 | 0 |
| | | 30+ | 30+ | 4 | 19 | 8 | 18+ | 15+ | 8 | 6 | 2 | 6 |
| | | 28 | 30+ | 2 | 19 | 4 | | | | | 3 | 6 |
| 14:45 | 14:50 | | | | | | | | | | | |
| | | 30+ | 32+ | 6 | 19 | 4 | 17+ | 15+ | 4 | 1 | 4 | 1 |
| | | 29 | 31+ | 6 | 17 | 14 | 20+ | 19+ | 6 | 4 | 6 | 5 |
| | | | | | | | | | | | | |
| 14:50 | 14:55 | | | | | | | | | | | |
| | | 19 | 22 | 2 | 20 | 6 | 18+ | 16+ | 12+ | 11+ | 4 | 7 |
| | | 18 | 21 | 1 | 15 | 6 | 22+ | 19+ | 10 | 10 | 1 | 3 |
| | | | | 4 | 15 | 5 | 22+ | 22 | 8 | 6 | 6 | 4 |
| 14:55 | 15:00 | | | | | | | | | | | |
| | | 17 | 23 | 4 | 12 | 6 | 20 | 17 | 6 | 3 | 7 | 7 |
| | | 20 | 20 | 7 | 18 | 6 | 13 | 16 | 9 | 6 | 5 | 8 |
| | | 31+ | 29+ | | | | | | | | | |
| 15:00 | 15:05 | | | | | | | | | | | |
| | | 31+ | 30+ | 6 | 14 | 2 | 13 | 11 | 4 | 1 | 11 | 6 |
| | | 18 | 11 | | 12 | 13 | 12 | 11 | 9 | 7 | 11 | 5 |
| | | | | | | 14 | 18+ | 14+ | 8 | 6 | | |
| 15:05 | 15:10 | | | | | | | | | | | |
| | | 20 | 19 | 7 | 9 | 5 | 18 | 19 | 7 | 4 | 17+ | 7 |
| | | 22 | 30+ | 6 | 7 | 7 | 19+ | 18+ | 7 | 3 | 17+ | 3 |
| | | 25 | 29+ | 5 | 13 | | | | | | 16+ | 5 |
| 15:10 | 15:15 | | | | | | | | | | | |
| | | 25 | 30+ | 5 | 12 | 8 | 21+ | 19+ | 8 | 6 | 16+ | 7 |
| | | 21 | 27+ | 3 | 12 | 5 | 18+ | 17+ | 11 | 7 | 16+ | 7 |
| | | | | | | 11 | 19+ | 17+ | 8 | 4 | | |
| 15:15 | 15:20 | | | | | | | | | | | |
| | | 32+ | 31+ | 5 | 17 | 14 | 19+ | 18+ | 5 | 4 | 16+ | 6 |
| | | 27 | 29+ | 6 | 13 | 7 | 16+ | 18+ | 7 | 5 | 12 | 7 |
| | | 20 | 30+ | 7 | 16 | | | | | | | |
| 15:20 | 15:25 | | | | | | | | | | | |
| | | 28 | 30+ | 7 | 17 | 9 | 19+ | 19+ | 5 | 3 | 16+ | 4 |
| | | 25 | 27+ | 8 | 14 | 14 | 16+ | 16+ | 4 | 2 | 16+ | 7 |
| | | | | | | 9 | 17+ | 18+ | 5 | 3 | | |
| 15:25 | 15:30 | | | | | | | | | | | |
| | | 24 | 31+ | 2 | 14 | 7 | 17+ | 16+ | 10+ | 8 | 16+ | 8 |
| | | 25 | 30+ | 3 | 8 | 2 | 17+ | 17+ | 11+ | 10+ | 17+ | 7 |
| | | 21 | 23 | 2 | 6 | 3 | | | | | 18+ | 6 |
| 15:30 | 15:35 | | | | | | | | | | | |
| | | 23 | 28 | 1 | 5 | 3 | 20+ | 18+ | 11+ | 8 | 11 | 7 |
| | | 26 | 26+ | 2 | 6 | 6 | 21+ | 20+ | 8 | 7 | 4 | 5 |
| | | | | | | 2 | 23+ | 19+ | 10+ | 6+ | | |
| 15:35 | 15:40 | | | | | | | | | | | |
| | | 20 | 28 | 1 | 14 | 7 | 21+ | 19+ | 10+ | 6 | 3 | 5 |
| | | 24 | 25+ | 3 | 8 | 8 | 20+ | 17+ | 10 | 7 | 5 | 1 |
| | | 26 | 29+ | | | 3 | | | | | 2 | 3 |
| 15:40 | 15:45 | | | | | | | | | | | |
| | | 27+ | 31+ | 0 | 8 | 8 | 19+ | 18+ | 11+ | 9+ | 1 | 5 |
| | | 35+ | 32+ | 1 | 6 | 3 | 18+ | 17+ | 11+ | 10 | 7 | 6 |
| | | | | | | 5 | 20+ | 16+ | 15+ | 8 | | |
| 15:45 | 15:50 | | | | | | | | | | | |
| | | 31+ | 29+ | 1 | 8 | 2 | 19+ | 18+ | 8 | 8 | 7 | 3 |
| | | 30+ | 31+ | 2 | 11 | 3 | 21+ | 19+ | 11 | 9 | 6 | 3 |
| | | 31+ | 30+ | 3 | 6 | 2 | | | | | | |
| 15:50 | 15:55 | | | | | | | | | | | |
| | | 30+ | 31+ | 3 | 5 | 11 | 19+ | 18+ | 6 | 4 | 6 | 5 |
| | | 30+ | 30+ | 2 | 5 | | | | | | | |

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

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DNV-GL

DNV-GL

DNV-GL

AS/NZS 4801

AS/NZS 4801

ISO 14001

Intersection of Curlewis Street and Wellington Street, Bondi Beach

GPS-33.885608, 151.269295

Date: Tue 30/03/21

Weather: Overcast

Suburban: Bondi Beach

Customer: McLaren

North: Wellington Street

East: Curlewis Street

South: Wellington Street

West: Curlewis Street

Survey AM: 7:30 AM-9:00 AM

Period PM: 2:00 PM-4:30 PM

Traffic AM: 8:15 AM-9:15 AM

Peak PM: 3:15 PM-4:15 PM

| All Vehicles | | North Approach Wellington Street | | | | East Approach Curlewis Street | | | | South Approach Wellington Street | | | | West Approach Curlewis Street | | | | Hourly Total | |
|--------------|------------|----------------------------------|-----|----|---|-------------------------------|---|----|---|----------------------------------|---|----|----|-------------------------------|---|----|---|--------------|------|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour | Peak |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 160 | 0 | 0 | 0 | 2 | 48 | 0 | 0 | 2 | 15 | 16 | 2 | 0 | 16 | 1 | 1047 | |
| 7:45 | 8:00 | 1 | 154 | 0 | 2 | 1 | 3 | 40 | 0 | 0 | 2 | 12 | 21 | 1 | 0 | 38 | 0 | 1052 | Peak |
| 8:00 | 8:15 | 0 | 139 | 0 | 2 | 1 | 0 | 58 | 0 | 0 | 0 | 15 | 14 | 0 | 0 | 36 | 0 | 1044 | |
| 8:15 | 8:30 | 0 | 127 | 0 | 2 | 2 | 2 | 39 | 0 | 0 | 5 | 23 | 9 | 2 | 0 | 34 | 0 | | |
| 8:30 | 8:45 | 0 | 142 | 0 | 4 | 1 | 1 | 36 | 0 | 0 | 5 | 19 | 13 | 0 | 1 | 45 | 0 | | |
| 8:45 | 9:00 | 1 | 132 | 0 | 2 | 0 | 2 | 41 | 0 | 0 | 5 | 30 | 10 | 2 | 0 | 42 | 0 | | |
| 14:00 | 14:15 | 0 | 89 | 0 | 4 | 1 | 2 | 46 | 0 | 0 | 3 | 20 | 18 | 1 | 1 | 50 | 2 | 955 | |
| 14:15 | 14:30 | 0 | 102 | 0 | 7 | 0 | 2 | 40 | 0 | 0 | 4 | 19 | 10 | 2 | 0 | 33 | 1 | 979 | |
| 14:30 | 14:45 | 0 | 101 | 0 | 2 | 0 | 3 | 50 | 0 | 0 | 3 | 23 | 16 | 3 | 0 | 36 | 1 | 1017 | |
| 14:45 | 15:00 | 0 | 118 | 0 | 3 | 1 | 3 | 38 | 0 | 0 | 6 | 27 | 13 | 7 | 0 | 43 | 1 | 1047 | Peak |
| 15:00 | 15:15 | 1 | 127 | 0 | 3 | 2 | 3 | 42 | 0 | 0 | 5 | 22 | 11 | 3 | 0 | 42 | 0 | 1025 | |
| 15:15 | 15:30 | 0 | 118 | 0 | 4 | 0 | 1 | 39 | 0 | 0 | 8 | 22 | 11 | 2 | 0 | 53 | 0 | 998 | |
| 15:30 | 15:45 | 0 | 129 | 0 | 1 | 2 | 2 | 44 | 0 | 0 | 1 | 28 | 12 | 4 | 0 | 45 | 0 | 1009 | |
| 15:45 | 16:00 | 0 | 110 | 0 | 5 | 0 | 3 | 36 | 0 | 0 | 5 | 21 | 18 | 2 | 0 | 35 | 3 | | |
| 16:00 | 16:15 | 0 | 91 | 0 | 6 | 0 | 2 | 36 | 0 | 0 | 6 | 39 | 12 | 2 | 0 | 40 | 0 | | |
| 16:15 | 16:30 | 0 | 110 | 0 | 2 | 4 | 1 | 38 | 0 | 0 | 8 | 33 | 13 | 1 | 0 | 56 | 3 | | |

| Peak Time | | North Approach Wellington Street | | | | East Approach Curlewis Street | | | | South Approach Wellington Street | | | | West Approach Curlewis Street | | | | Peak total | |
|--------------|------------|----------------------------------|-----|----|----|-------------------------------|---|-----|---|----------------------------------|----|----|----|-------------------------------|---|-----|---|------------|--|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 7:45 | 8:45 | 1 | 562 | 0 | 10 | 5 | 6 | 173 | 0 | 0 | 12 | 69 | 57 | 3 | 1 | 153 | 0 | 1052 | |
| 14:45 | 15:45 | 1 | 492 | 0 | 11 | 5 | 9 | 163 | 0 | 0 | 20 | 99 | 47 | 16 | 0 | 183 | 1 | 1047 | |

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Total

Light

Heavy

Wellington Street

Curlewis Street

Curlewis Street

Wellington Street

AM Peak 8:15 AM-9:15 AM

Wellington Street

Curlewis Street

Curlewis Street

Wellington Street

PM Peak 3:15 PM-4:15 PM

| Light Vehicles | | North Approach Wellington Street | | | | East Approach Curlewis Street | | | | South Approach Wellington Street | | | | West Approach Curlewis Street | | | | | |
|----------------|------------|----------------------------------|-----|----|---|-------------------------------|---|----|---|----------------------------------|---|----|----|-------------------------------|---|----|---|--|--|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 160 | 0 | 0 | 0 | 2 | 46 | 0 | 0 | 2 | 15 | 16 | 2 | 0 | 15 | 1 | | |
| 7:45 | 8:00 | 1 | 152 | 0 | 2 | 1 | 0 | 40 | 0 | 0 | 2 | 12 | 21 | 1 | 0 | 33 | 0 | | |
| 8:00 | 8:15 | 0 | 136 | 0 | 2 | 1 | 0 | 58 | 0 | 0 | 0 | 15 | 14 | 0 | 0 | 35 | 0 | | |
| 8:15 | 8:30 | 0 | 125 | 0 | 2 | 2 | 2 | 37 | 0 | 0 | 3 | 23 | 8 | 1 | 0 | 34 | 0 | | |
| 8:30 | 8:45 | 0 | 138 | 0 | 4 | 1 | 1 | 35 | 0 | 0 | 5 | 19 | 13 | 0 | 1 | 42 | 0 | | |
| 8:45 | 9:00 | 1 | 130 | 0 | 2 | 0 | 2 | 39 | 0 | 0 | 5 | 29 | 10 | 2 | 0 | 38 | 0 | | |
| 14:00 | 14:15 | 0 | 86 | 0 | 4 | 1 | 2 | 45 | 0 | 0 | 3 | 20 | 18 | 1 | 1 | 49 | 2 | | |
| 14:15 | 14:30 | 0 | 99 | 0 | 7 | 0 | 2 | 38 | 0 | 0 | 4 | 19 | 10 | 2 | 0 | 31 | 1 | | |
| 14:30 | 14:45 | 0 | 99 | 0 | 2 | 0 | 3 | 48 | 0 | 0 | 3 | 23 | 16 | 3 | 0 | 34 | 1 | | |
| 14:45 | 15:00 | 0 | 116 | 0 | 3 | 1 | 3 | 34 | 0 | 0 | 6 | 25 | 13 | 7 | 0 | 41 | 1 | | |
| 15:00 | 15:15 | 1 | 124 | 0 | 3 | 2 | 3 | 36 | 0 | 0 | 5 | 20 | 11 | 3 | 0 | 41 | 0 | | |
| 15:15 | 15:30 | 0 | 114 | 0 | 4 | 0 | 1 | 38 | 0 | 0 | 8 | 22 | 11 | 2 | 0 | 52 | 0 | | |
| 15:30 | 15:45 | 0 | 123 | 0 | 1 | 2 | 2 | 40 | 0 | 0 | 1 | 28 | 12 | 4 | 0 | 45 | 0 | | |
| 15:45 | 16:00 | 0 | 107 | 0 | 5 | 0 | 3 | 36 | 0 | 0 | 5 | 21 | 18 | 2 | 0 | 35 | 3 | | |
| 16:00 | 16:15 | 0 | 90 | 0 | 6 | 0 | 2 | 36 | 0 | 0 | 6 | 36 | 12 | 2 | 0 | 39 | 0 | | |
| 16:15 | 16:30 | 0 | 109 | 0 | 2 | 4 | 1 | 34 | 0 | 0 | 8 | 32 | 12 | 1 | 0 | 52 | 3 | | |

| Peak Time | | North Approach Wellington Street | | | | East Approach Curlewis Street | | | | South Approach Wellington Street | | | | West Approach Curlewis Street | | | | Peak total | |
|--------------|------------|----------------------------------|-----|----|----|-------------------------------|---|-----|---|----------------------------------|----|----|----|-------------------------------|---|-----|---|------------|--|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 7:45 | 8:45 | 1 | 551 | 0 | 10 | 5 | 3 | 170 | 0 | 0 | 10 | 69 | 56 | 2 | 1 | 144 | 0 | 1022 | |
| 14:45 | 15:45 | 1 | 477 | 0 | 11 | 5 | 9 | 148 | 0 | 0 | 20 | 95 | 47 | 16 | 0 | 179 | 1 | 1009 | |

| Heavy Vehicles | | North Approach Wellington Street | | | | East Approach Curlewis Street | | | | South Approach Wellington Street | | | | West Approach Curlewis Street | | | | | |
|----------------|------------|----------------------------------|---|----|---|-------------------------------|---|----|---|----------------------------------|---|----|---|-------------------------------|---|----|---|--|--|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| 7:45 | 8:00 | 0 | 2 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | | |
| 8:00 | 8:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| 8:15 | 8:30 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | | |
| 8:30 | 8:45 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | | |
| 8:45 | 9:00 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 0 | | |
| 14:00 | 14:15 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| 14:15 | 14:30 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | | |
| 14:30 | 14:45 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | | |
| 14:45 | 15:00 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | | |
| 15:00 | 15:15 | 0 | 3 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | | |
| 15:15 | 15:30 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | | |
| 15:30 | 15:45 | 0 | 6 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 15:45 | 16:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| 16:00 | 16:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 0 | | |
| 16:15 | 16:30 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 0 | | |

| Peak Time | | North Approach Wellington Street | | | | East Approach Curlewis Street | | | | South Approach Wellington Street | | | | West Approach Curlewis Street | | | | Peak total | |
|--------------|------------|----------------------------------|----|----|---|-------------------------------|---|----|---|----------------------------------|---|----|---|-------------------------------|---|----|---|------------|--|
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 7:45 | 8:45 | 0 | 11 | 0 | 0 | 0 | 3 | 3 | 0 | 0 | 2 | 0 | 1 | 1 | 0 | 9 | 0 | 30 | |
| 14:45 | 15:45 | 0 | 15 | 0 | 0 | 0 | 0 | 15 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 | 38 | |

TC/TEAV.01/21.10- Attachment 1

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TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

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DNV-GL

DNV-GL

DNV-GL

AS/NZS 4801

AS/NZS 4801

ISO 14001

Intersection of Blair Street and Glenayr Avenue, Bondi Beach

GPS-33.885422, 151.274211

Date: Tue 30/03/21

Weather: Overcast

Suburban: Bondi Beach

Customer: McLaren

North: Glenayr Avenue

East: Blair Street

South: Property 27 Blair Street

West: Blair Street

Survey AM: 7:30 AM-9:00 AM

Period PM: 2:00 PM-4:30 PM

Traffic AM: 7:30 AM-8:30 AM

Peak PM: 2:00 PM-3:00 PM

| All Vehicles | | North Approach Glenayr Avenue | | | | East Approach Blair Street | | | | South Approach Property 27 Blair Stree | | | | West Approach Blair Street | | | | Hourly Total | |
|--------------|------------|-------------------------------|----|----|----|----------------------------|---|-----|---|--|---|----|---|----------------------------|---|-----|-----|--------------|------|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour | Peak |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 29 | 1 | 1 | 0 | 0 | 154 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 67 | 24 | 1154 | |
| 7:45 | 8:00 | 0 | 28 | 0 | 2 | 0 | 0 | 137 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 82 | 17 | 1188 | |
| 8:00 | 8:15 | 0 | 16 | 1 | 7 | 0 | 1 | 144 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 90 | 27 | 1251 | Peak |
| 8:15 | 8:30 | 0 | 20 | 0 | 10 | 0 | 2 | 144 | 2 | 0 | 0 | 0 | 2 | 3 | 0 | 109 | 17 | | |
| 8:30 | 8:45 | 0 | 26 | 0 | 3 | 1 | 3 | 134 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 121 | 27 | | |
| 8:45 | 9:00 | 0 | 23 | 0 | 4 | 0 | 0 | 140 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 123 | 39 | | |
| 14:00 | 14:15 | 0 | 7 | 0 | 1 | 0 | 0 | 75 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 84 | 25 | 941 | |
| 14:15 | 14:30 | 0 | 12 | 1 | 0 | 0 | 0 | 99 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 103 | 25 | 1063 | |
| 14:30 | 14:45 | 0 | 15 | 0 | 3 | 0 | 2 | 109 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 99 | 32 | 1117 | |
| 14:45 | 15:00 | 0 | 15 | 0 | 3 | 1 | 1 | 101 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 88 | 27 | 1158 | |
| 15:00 | 15:15 | 0 | 16 | 0 | 6 | 9 | 3 | 134 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 109 | 38 | 1167 | Peak |
| 15:15 | 15:30 | 0 | 25 | 0 | 2 | 0 | 3 | 113 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 118 | 36 | 1129 | |
| 15:30 | 15:45 | 0 | 19 | 0 | 1 | 1 | 3 | 113 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 139 | 28 | 1126 | |
| 15:45 | 16:00 | 0 | 7 | 1 | 1 | 1 | 0 | 105 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 103 | 27 | | |
| 16:00 | 16:15 | 0 | 13 | 0 | 5 | 2 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 136 | 32 | | |
| 16:15 | 16:30 | 0 | 18 | 0 | 3 | 0 | 2 | 112 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 131 | 27 | | |
| Peak Time | | North Approach Glenayr Avenue | | | | East Approach Blair Street | | | | South Approach Property 27 Blair Stree | | | | West Approach Blair Street | | | | Peak total | |
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 8:00 | 9:00 | 0 | 85 | 1 | 24 | 1 | 6 | 562 | 3 | 0 | 0 | 0 | 7 | 7 | 2 | 443 | 110 | 1251 | |
| 15:00 | 16:00 | 0 | 67 | 1 | 10 | 11 | 9 | 465 | 1 | 0 | 0 | 0 | 1 | 4 | 0 | 469 | 129 | 1167 | |

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic

Total

Light

Heavy

Glenayr Avenue

Blair Street

Property 27 Blair Street

AM Peak 7:30 AM-8:30 AM

North

Glenayr Avenue

Blair Street

Property 27 Blair Street

PM Peak 2:00 PM-3:00 PM

North

| Light Vehicles | | North Approach Glenayr Avenue | | | | East Approach Blair Street | | | | South Approach Property 27 Blair Stree | | | | West Approach Blair Street | | | | | |
|----------------|------------|-------------------------------|----|----|----|----------------------------|---|-----|---|--|---|----|---|----------------------------|---|-----|-----|------------|--|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 29 | 1 | 1 | 0 | 0 | 148 | 2 | 0 | 0 | 0 | 4 | 0 | 0 | 60 | 22 | | |
| 7:45 | 8:00 | 0 | 27 | 0 | 2 | 0 | 0 | 133 | 2 | 0 | 0 | 0 | 1 | 2 | 2 | 78 | 17 | | |
| 8:00 | 8:15 | 0 | 16 | 1 | 7 | 0 | 1 | 140 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 85 | 26 | | |
| 8:15 | 8:30 | 0 | 20 | 0 | 10 | 0 | 2 | 138 | 2 | 0 | 0 | 0 | 2 | 3 | 0 | 106 | 16 | | |
| 8:30 | 8:45 | 0 | 26 | 0 | 3 | 1 | 3 | 131 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 113 | 26 | | |
| 8:45 | 9:00 | 0 | 23 | 0 | 4 | 0 | 0 | 136 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 116 | 38 | | |
| 14:00 | 14:15 | 0 | 7 | 0 | 1 | 0 | 0 | 70 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 79 | 25 | | |
| 14:15 | 14:30 | 0 | 12 | 1 | 0 | 0 | 0 | 95 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 99 | 24 | | |
| 14:30 | 14:45 | 0 | 15 | 0 | 3 | 0 | 2 | 106 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 93 | 31 | | |
| 14:45 | 15:00 | 0 | 15 | 0 | 3 | 1 | 1 | 97 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 85 | 26 | | |
| 15:00 | 15:15 | 0 | 15 | 0 | 6 | 8 | 3 | 130 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 103 | 37 | | |
| 15:15 | 15:30 | 0 | 24 | 0 | 2 | 0 | 3 | 108 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 36 | | |
| 15:30 | 15:45 | 0 | 19 | 0 | 1 | 1 | 3 | 107 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 136 | 28 | | |
| 15:45 | 16:00 | 0 | 7 | 1 | 1 | 1 | 0 | 100 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 99 | 27 | | |
| 16:00 | 16:15 | 0 | 13 | 0 | 5 | 2 | 0 | 85 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 130 | 32 | | |
| 16:15 | 16:30 | 0 | 18 | 0 | 3 | 0 | 2 | 108 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 128 | 27 | | |
| Peak Time | | North Approach Glenayr Avenue | | | | East Approach Blair Street | | | | South Approach Property 27 Blair Stree | | | | West Approach Blair Street | | | | Peak total | |
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 8:00 | 9:00 | 0 | 85 | 1 | 24 | 1 | 6 | 545 | 3 | 0 | 0 | 0 | 7 | 7 | 2 | 420 | 106 | 1207 | |
| 15:00 | 16:00 | 0 | 65 | 1 | 10 | 10 | 9 | 445 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 453 | 128 | 1126 | |

| Heavy Vehicles | | North Approach Glenayr Avenue | | | | East Approach Blair Street | | | | South Approach Property 27 Blair Stree | | | | West Approach Blair Street | | | | | |
|----------------|------------|-------------------------------|---|----|---|----------------------------|---|----|---|--|---|----|---|----------------------------|---|----|---|------------|--|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 2 | | |
| 7:45 | 8:00 | 0 | 1 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | | |
| 8:00 | 8:15 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | | |
| 8:15 | 8:30 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | | |
| 8:30 | 8:45 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 1 | | |
| 8:45 | 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | | |
| 14:00 | 14:15 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | | |
| 14:15 | 14:30 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | | |
| 14:30 | 14:45 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | | |
| 14:45 | 15:00 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | | |
| 15:00 | 15:15 | 0 | 1 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | | |
| 15:15 | 15:30 | 0 | 1 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | | |
| 15:30 | 15:45 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | | |
| 15:45 | 16:00 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | | |
| 16:00 | 16:15 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | | |
| 16:15 | 16:30 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | | |
| Peak Time | | North Approach Glenayr Avenue | | | | East Approach Blair Street | | | | South Approach Property 27 Blair Stree | | | | West Approach Blair Street | | | | Peak total | |
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 8:00 | 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 4 | 44 | |
| 15:00 | 16:00 | 0 | 2 | 0 | 0 | 1 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 16 | 1 | 41 | |

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TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

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QUALITY SYSTEM CERTIFICATION

DNV·GL

ISO 9001

SAFETY SYSTEM CERTIFICATION

DNV·GL

AS/NZS 4801

ENVIRONMENTAL SYSTEM CERTIFICATION

DNV·GL

ISO 14001

Pedestrians Count

| | |
|------------------|--------------|
| Date: | Tue 30/03/21 |
| Weather: | Overcast |
| Suburban: | Bondi Beach |
| Customer: | McLaren |

| Time | | Northbound | Southbound |
|--------------|------------|------------|------------|
| Period Start | Period End | | |
| 7:30 | 7:45 | 10 | 7 |
| 7:45 | 8:00 | 5 | 4 |
| 8:00 | 8:15 | 4 | 3 |
| 8:15 | 8:30 | 7 | 12 |
| 8:30 | 8:45 | 18 | 3 |
| 8:45 | 9:00 | 0 | 3 |
| 14:00 | 14:15 | 1 | 4 |
| 14:15 | 14:30 | 0 | 1 |
| 14:30 | 14:45 | 0 | 3 |
| 14:45 | 15:00 | 14 | 17 |
| 15:00 | 15:15 | 2 | 5 |
| 15:15 | 15:30 | 0 | 5 |
| 15:30 | 15:45 | 3 | 3 |
| 15:45 | 16:00 | 2 | 3 |
| 16:00 | 16:15 | 1 | 4 |
| 16:15 | 16:30 | 3 | 1 |

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

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DNV-GL

DNV-GL

DNV-GL

DNV-GL

DNV-GL

DNV-GL

Intersection of Blair Street and Mitchell Street, Bondi Beach

GPS

-33.885512, 151.275970

Date: Tue 30/03/21

Weather: Overcast

Suburban: Bondi Beach

Customer: McLaren

North: Mitchell Street

East: Blair Street

South: Mitchell Street

West: Blair Street

Survey

AM: 7:30 AM-9:00 AM

PM: 2:00 PM-4:30 PM

Traffic

AM: 8:45 AM-9:45 AM

PM: 3:00 PM-4:00 PM

| All Vehicles | | North Approach Mitchell Street | | | | East Approach Blair Street | | | | South Approach Mitchell Street | | | | West Approach Blair Street | | | | Hourly Total | |
|--------------|------------|--------------------------------|-----|-----|----|----------------------------|----|-----|----|--------------------------------|---|----|----|----------------------------|----|-----|-----|--------------|------|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | Hour | Peak |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 50 | 38 | 3 | 0 | 7 | 91 | 4 | 0 | 2 | 5 | 9 | 6 | 9 | 39 | 20 | 1195 | |
| 7:45 | 8:00 | 4 | 48 | 37 | 5 | 1 | 8 | 79 | 4 | 0 | 2 | 4 | 6 | 1 | 4 | 35 | 34 | 1239 | |
| 8:00 | 8:15 | 3 | 49 | 37 | 8 | 2 | 13 | 78 | 2 | 0 | 2 | 8 | 14 | 4 | 13 | 57 | 28 | 1308 | Peak |
| 8:15 | 8:30 | 0 | 50 | 33 | 7 | 1 | 10 | 84 | 2 | 0 | 0 | 8 | 12 | 5 | 18 | 49 | 43 | | |
| 8:30 | 8:45 | 1 | 52 | 31 | 8 | 1 | 11 | 66 | 0 | 3 | 0 | 16 | 13 | 10 | 12 | 58 | 45 | | |
| 8:45 | 9:00 | 0 | 49 | 28 | 8 | 2 | 13 | 78 | 3 | 3 | 4 | 12 | 11 | 7 | 14 | 68 | 41 | | |
| 14:00 | 14:15 | 0 | 24 | 14 | 2 | 1 | 10 | 45 | 1 | 0 | 0 | 4 | 3 | 2 | 4 | 54 | 24 | 921 | |
| 14:15 | 14:30 | 1 | 25 | 11 | 6 | 0 | 8 | 65 | 2 | 1 | 1 | 7 | 6 | 2 | 3 | 66 | 29 | 1045 | |
| 14:30 | 14:45 | 2 | 31 | 23 | 5 | 0 | 7 | 64 | 2 | 1 | 1 | 7 | 11 | 4 | 3 | 54 | 38 | 1111 | |
| 14:45 | 15:00 | 0 | 33 | 29 | 8 | 0 | 11 | 61 | 1 | 0 | 2 | 4 | 8 | 5 | 5 | 49 | 31 | 1153 | |
| 15:00 | 15:15 | 1 | 28 | 20 | 8 | 0 | 12 | 86 | 2 | 0 | 3 | 16 | 18 | 14 | 12 | 59 | 33 | 1169 | Peak |
| 15:15 | 15:30 | 0 | 44 | 28 | 3 | 0 | 11 | 65 | 1 | 0 | 2 | 9 | 9 | 2 | 7 | 70 | 48 | 1133 | |
| 15:30 | 15:45 | 3 | 45 | 24 | 5 | 1 | 7 | 57 | 5 | 0 | 3 | 5 | 4 | 5 | 10 | 85 | 36 | 1132 | |
| 15:45 | 16:00 | 1 | 37 | 23 | 7 | 0 | 8 | 64 | 4 | 1 | 1 | 5 | 8 | 4 | 5 | 53 | 42 | | |
| 16:00 | 16:15 | 0 | 39 | 31 | 4 | 1 | 9 | 42 | 5 | 0 | 0 | 2 | 3 | 1 | 5 | 84 | 50 | | |
| 16:15 | 16:30 | 2 | 38 | 23 | 6 | 0 | 6 | 63 | 4 | 1 | 1 | 6 | 11 | 2 | 6 | 91 | 38 | | |
| Peak Time | | North Approach Mitchell Street | | | | East Approach Blair Street | | | | South Approach Mitchell Street | | | | West Approach Blair Street | | | | Peak total | |
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 8:00 | 9:00 | 4 | 200 | 129 | 31 | 6 | 47 | 306 | 7 | 6 | 6 | 44 | 50 | 26 | 57 | 232 | 157 | 1308 | |
| 15:00 | 16:00 | 5 | 154 | 95 | 23 | 1 | 38 | 272 | 12 | 1 | 9 | 35 | 39 | 25 | 34 | 267 | 159 | 1169 | |

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Total

Light

Heavy

Mitchell Street

Blair Street

Mitchell Street

Blair Street

AM Peak 8:45 AM-9:45 AM

PM Peak 3:00 PM-4:00 PM

0 10 2 1

4 190 127 30

4 200 129 31

0 10 2 1

0 10 2 1

3 144 92 22

5 154 95 23

0 10 2 1

| Light Vehicles | | North Approach Mitchell Street | | | | East Approach Blair Street | | | | South Approach Mitchell Street | | | | West Approach Blair Street | | | | Peak total | |
|----------------|------------|--------------------------------|-----|-----|----|----------------------------|----|-----|----|--------------------------------|---|----|----|----------------------------|----|-----|-----|------------|--|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| Period Start | Period End | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 45 | 38 | 3 | 0 | 7 | 91 | 4 | 0 | 2 | 4 | 9 | 5 | 9 | 35 | 18 | | |
| 7:45 | 8:00 | 4 | 45 | 37 | 5 | 1 | 8 | 78 | 3 | 0 | 1 | 4 | 6 | 1 | 4 | 34 | 32 | | |
| 8:00 | 8:15 | 3 | 47 | 36 | 8 | 2 | 13 | 76 | 2 | 0 | 2 | 8 | 14 | 4 | 12 | 53 | 27 | | |
| 8:15 | 8:30 | 0 | 48 | 32 | 7 | 1 | 9 | 81 | 2 | 0 | 0 | 8 | 11 | 5 | 18 | 48 | 41 | | |
| 8:30 | 8:45 | 1 | 50 | 31 | 8 | 1 | 11 | 65 | 0 | 2 | 0 | 15 | 13 | 10 | 10 | 55 | 42 | | |
| 8:45 | 9:00 | 0 | 45 | 28 | 7 | 2 | 12 | 78 | 3 | 3 | 4 | 12 | 11 | 7 | 13 | 66 | 37 | | |
| 14:00 | 14:15 | 0 | 22 | 13 | 2 | 1 | 10 | 44 | 1 | 0 | 0 | 4 | 2 | 2 | 4 | 52 | 21 | | |
| 14:15 | 14:30 | 0 | 23 | 11 | 6 | 0 | 7 | 62 | 2 | 1 | 0 | 7 | 6 | 2 | 3 | 66 | 25 | | |
| 14:30 | 14:45 | 2 | 28 | 23 | 4 | 0 | 7 | 64 | 2 | 1 | 1 | 7 | 11 | 4 | 3 | 54 | 33 | | |
| 14:45 | 15:00 | 0 | 30 | 28 | 8 | 0 | 11 | 61 | 1 | 0 | 2 | 4 | 8 | 5 | 5 | 48 | 28 | | |
| 15:00 | 15:15 | 1 | 24 | 19 | 8 | 0 | 12 | 85 | 2 | 0 | 3 | 16 | 17 | 14 | 12 | 55 | 31 | | |
| 15:15 | 15:30 | 0 | 43 | 28 | 3 | 0 | 10 | 62 | 1 | 0 | 2 | 9 | 8 | 2 | 7 | 70 | 46 | | |
| 15:30 | 15:45 | 1 | 42 | 23 | 4 | 1 | 7 | 55 | 5 | 0 | 3 | 5 | 4 | 5 | 10 | 84 | 34 | | |
| 15:45 | 16:00 | 1 | 35 | 22 | 7 | 0 | 8 | 60 | 4 | 1 | 1 | 5 | 8 | 4 | 5 | 53 | 37 | | |
| 16:00 | 16:15 | 0 | 37 | 31 | 4 | 1 | 9 | 42 | 5 | 0 | 0 | 2 | 3 | 1 | 4 | 83 | 46 | | |
| 16:15 | 16:30 | 2 | 36 | 23 | 6 | 0 | 6 | 60 | 4 | 1 | 1 | 6 | 11 | 2 | 6 | 90 | 36 | | |
| Peak Time | | North Approach Mitchell Street | | | | East Approach Blair Street | | | | South Approach Mitchell Street | | | | West Approach Blair Street | | | | Peak total | |
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | |
| 8:00 | 9:00 | 4 | 190 | 127 | 30 | 6 | 45 | 300 | 7 | 5 | 6 | 43 | 49 | 26 | 53 | 222 | 147 | 1260 | |
| 15:00 | 16:00 | 3 | 144 | 92 | 22 | 1 | 37 | 262 | 12 | 1 | 9 | 35 | 37 | 25 | 34 | 262 | 148 | 1124 | |

| Heavy Vehicles | | North Approach Mitchell Street | | | | East Approach Blair Street | | | | South Approach Mitchell Street | | | | West Approach Blair Street | | | | Peak total | | |
|----------------|------------|--------------------------------|----|----|---|----------------------------|---|----|---|--------------------------------|---|----|---|----------------------------|---|----|----|------------|--|--|
| Time | | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | | |
| Period Start | Period End | | | | | | | | | | | | | | | | | | | |
| 7:30 | 7:45 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 4 | 2 | | | |
| 7:45 | 8:00 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | | | |
| 8:00 | 8:15 | 0 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | | | |
| 8:15 | 8:30 | 0 | 2 | 1 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | | | |
| 8:30 | 8:45 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 2 | 3 | 3 | | | |
| 8:45 | 9:00 | 0 | 4 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 4 | | | |
| 14:00 | 14:15 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 3 | | | |
| 14:15 | 14:30 | 1 | 2 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | | | |
| 14:30 | 14:45 | 0 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | | | |
| 14:45 | 15:00 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | | | |
| 15:00 | 15:15 | 0 | 4 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 2 | | | |
| 15:15 | 15:30 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | | | |
| 15:30 | 15:45 | 2 | 3 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | | | |
| 15:45 | 16:00 | 0 | 2 | 1 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | | | |
| 16:00 | 16:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | | | |
| 16:15 | 16:30 | 0 | 2 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | | | |
| Peak Time | | North Approach Mitchell Street | | | | East Approach Blair Street | | | | South Approach Mitchell Street | | | | West Approach Blair Street | | | | Peak total | | |
| Period Start | Period End | U | R | SB | L | U | R | WB | L | U | R | NB | L | U | R | EB | L | | | |
| 8:00 | 9:00 | 0 | 10 | 2 | 1 | 0 | 2 | 6 | 0 | 1 | 0 | 1 | 1 | 0 | 4 | 10 | 10 | 48 | | |
| 15:00 | 16:00 | 2 | 10 | 3 | 1 | 0 | 1 | 10 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 5 | 11 | 45 | | |

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TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY



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Pedestrians Count

| | |
|------------------|--------------|
| Date: | Tue 30/03/21 |
| Weather: | Overcast |
| Suburban: | Bondi Beach |
| Customer: | McLaren |

| Time | | Northbound | Southbound |
|--------------|------------|------------|------------|
| Period Start | Period End | | |
| 7:30 | 7:45 | 11 | 5 |
| 7:45 | 8:00 | 17 | 9 |
| 8:00 | 8:15 | 13 | 5 |
| 8:15 | 8:30 | 13 | 13 |
| 8:30 | 8:45 | 7 | 27 |
| 8:45 | 9:00 | 23 | 43 |
| 14:00 | 14:15 | 3 | 5 |
| 14:15 | 14:30 | 3 | 2 |
| 14:30 | 14:45 | 4 | 10 |
| 14:45 | 15:00 | 6 | 18 |
| 15:00 | 15:15 | 39 | 9 |
| 15:15 | 15:30 | 10 | 7 |
| 15:30 | 15:45 | 5 | 21 |
| 15:45 | 16:00 | 4 | 8 |
| 16:00 | 16:15 | 2 | 4 |
| 16:15 | 16:30 | 9 | 16 |

Intersection of Murriverie Road and Mitchell Street, Bond

Intersection of Murriverie Road and Mitchell Street, Bond

| | |
|------------------|------------------------|
| GPS | -33.882113, 151.276766 |
| Date: | Tue 30/03/21 |
| Weather: | Overcast |
| Suburban: | Bondi Beach |
| Customer: | McLaren |

| | |
|---------------|------------------|
| North: | N/A |
| East: | Murrivierie Road |
| South: | Mitchell Street |
| West: | Murrivierie Road |

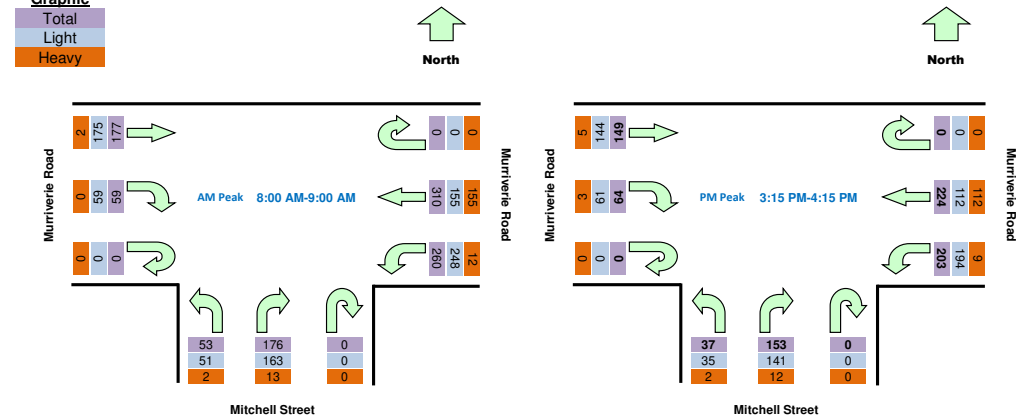
| | |
|----------------|---------------------|
| Survey | AM: 7:30 AM-9:00 AM |
| Period | PM: 2:00 PM-4:30 PM |
| Traffic | AM: 8:00 AM-9:00 AM |
| Peak | PM: 3:15 PM-4:15 PM |

| All Vehicles | | | | | | | | | | | | |
|--------------|------------|-----------------------------|----|----|------------------------------|----|----|-----------------------------|----|----|--------------|------|
| Time | | 1st Approach Murrverie Road | | | 2nd Approach Mitchell Street | | | 3rd Approach Murrverie Road | | | Hourly Total | |
| Period Start | Period End | U | WB | L | U | R | L | U | R | EB | Hour | Peak |
| 7:30 | 7:45 | 0 | 86 | 50 | 0 | 16 | 16 | 0 | 22 | 30 | 944 | |
| 7:45 | 8:00 | 0 | 72 | 82 | 0 | 29 | 7 | 0 | 18 | 28 | 987 | |
| 8:00 | 8:15 | 0 | 70 | 71 | 0 | 33 | 13 | 0 | 15 | 35 | 1035 | Peak |
| 8:15 | 8:30 | 0 | 86 | 60 | 0 | 44 | 9 | 0 | 17 | 35 | | |
| 8:30 | 8:45 | 0 | 76 | 67 | 0 | 48 | 14 | 0 | 14 | 44 | | |
| 8:45 | 9:00 | 0 | 78 | 62 | 0 | 51 | 17 | 0 | 13 | 63 | | |
| 14:00 | 14:15 | 0 | 50 | 26 | 0 | 29 | 8 | 0 | 6 | 22 | 716 | |
| 14:15 | 14:30 | 0 | 58 | 27 | 0 | 39 | 7 | 0 | 7 | 25 | 745 | |
| 14:30 | 14:45 | 0 | 62 | 51 | 0 | 34 | 10 | 0 | 14 | 43 | 792 | |
| 14:45 | 15:00 | 0 | 60 | 43 | 0 | 38 | 4 | 0 | 16 | 37 | 776 | |
| 15:00 | 15:15 | 0 | 44 | 36 | 0 | 31 | 16 | 0 | 9 | 34 | 785 | |
| 15:15 | 15:30 | 0 | 56 | 54 | 0 | 39 | 9 | 0 | 16 | 36 | 830 | Peak |
| 15:30 | 15:45 | 0 | 52 | 54 | 0 | 37 | 7 | 0 | 14 | 34 | 806 | |
| 15:45 | 16:00 | 0 | 60 | 37 | 0 | 39 | 11 | 0 | 20 | 40 | | |
| 16:00 | 16:15 | 0 | 56 | 58 | 0 | 38 | 10 | 0 | 14 | 39 | | |
| 16:15 | 16:30 | 0 | 54 | 43 | 0 | 30 | 11 | 0 | 11 | 37 | | |

| Peak Time | | East Approach Murrivierie Road | | | South Approach Mitchell Street | | | West Approach Murrivierie Road | | | Peak total |
|--------------|------------|--------------------------------|-----|-----|--------------------------------|-----|----|--------------------------------|----|-----|------------|
| Period Start | Period End | U | WB | L | U | R | L | U | R | EB | |
| 8:00 | 9:00 | 0 | 310 | 260 | 0 | 176 | 53 | 0 | 59 | 177 | 1035 |
| 15:15 | 16:15 | 0 | 224 | 203 | 0 | 153 | 37 | 0 | 64 | 149 | 830 |

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.

Graphic



| Light Vehicles | | | | | | | | | | | |
|----------------|------------|------------------------------|----|----|--------------------------------|----|----|------------------------------|----|----|--|
| Time | | East Approach Murrivier Road | | | North Approach Mitchell Street | | | West Approach Murrivier Road | | | |
| Period Start | Period End | U | WB | L | U | R | L | U | R | EB | |
| 7:30 | 7:45 | 0 | 43 | 45 | 0 | 14 | 15 | 0 | 22 | 30 | |
| 7:45 | 8:00 | 0 | 36 | 79 | 0 | 28 | 7 | 0 | 17 | 27 | |
| 8:00 | 8:15 | 0 | 35 | 68 | 0 | 32 | 13 | 0 | 15 | 34 | |
| 8:15 | 8:30 | 0 | 43 | 58 | 0 | 41 | 9 | 0 | 17 | 35 | |
| 8:30 | 8:45 | 0 | 38 | 65 | 0 | 43 | 14 | 0 | 14 | 44 | |
| 8:45 | 9:00 | 0 | 39 | 57 | 0 | 47 | 15 | 0 | 13 | 62 | |
| 14:00 | 14:15 | 0 | 25 | 22 | 0 | 26 | 8 | 0 | 6 | 22 | |
| 14:15 | 14:30 | 0 | 29 | 25 | 0 | 34 | 7 | 0 | 6 | 25 | |
| 14:30 | 14:45 | 0 | 31 | 49 | 0 | 30 | 10 | 0 | 14 | 36 | |
| 14:45 | 15:00 | 0 | 30 | 40 | 0 | 35 | 4 | 0 | 14 | 34 | |
| 15:00 | 15:15 | 0 | 22 | 34 | 0 | 30 | 16 | 0 | 8 | 33 | |
| 15:15 | 15:30 | 0 | 28 | 53 | 0 | 36 | 9 | 0 | 13 | 36 | |
| 15:30 | 15:45 | 0 | 26 | 51 | 0 | 35 | 7 | 0 | 14 | 34 | |
| 15:45 | 16:00 | 0 | 30 | 35 | 0 | 36 | 9 | 0 | 20 | 38 | |
| 16:00 | 16:15 | 0 | 28 | 55 | 0 | 34 | 10 | 0 | 14 | 36 | |
| 16:15 | 16:30 | 0 | 27 | 42 | 0 | 28 | 11 | 0 | 11 | 37 | |

| Peak Time | | East Approach Murriville Road | | | Rough Approach Mitchell Street | | | East Approach Murriville Road | | | Peak total |
|--------------|------------|-------------------------------|-----|-----|--------------------------------|-----|----|-------------------------------|----|-----|------------|
| Period Start | Period End | U | WB | L | U | R | L | U | R | EB | |
| 8:00 | 9:00 | 0 | 155 | 248 | 0 | 163 | 51 | 0 | 59 | 175 | 851 |
| 15:15 | 16:15 | 0 | 112 | 194 | 0 | 141 | 35 | 0 | 61 | 144 | 687 |

| Heavy Vehicles | | Light Vehicles | | | | | | | | |
|----------------|------------|-------------------------------|----|---|--------------------------------|---|---|-------------------------------|---|----|
| Time | | East Approach Murriville Road | | | North Approach Mitchell Street | | | West Approach Murriville Road | | |
| Period Start | Period End | U | WB | L | U | R | L | U | R | EB |
| 7:30 | 7:45 | 0 | 43 | 5 | 0 | 2 | 1 | 0 | 0 | 0 |
| 7:45 | 8:00 | 0 | 36 | 3 | 0 | 1 | 0 | 0 | 1 | 1 |
| 8:00 | 8:15 | 0 | 35 | 3 | 0 | 1 | 0 | 0 | 0 | 1 |
| 8:15 | 8:30 | 0 | 43 | 2 | 0 | 3 | 0 | 0 | 0 | 0 |
| 8:30 | 8:45 | 0 | 38 | 2 | 0 | 5 | 0 | 0 | 0 | 0 |
| 8:45 | 9:00 | 0 | 39 | 5 | 0 | 4 | 2 | 0 | 0 | 1 |
| 14:00 | 14:15 | 0 | 25 | 4 | 0 | 3 | 0 | 0 | 0 | 0 |
| 14:15 | 14:30 | 0 | 29 | 2 | 0 | 5 | 0 | 0 | 1 | 0 |
| 14:30 | 14:45 | 0 | 31 | 2 | 0 | 4 | 0 | 0 | 0 | 7 |
| 14:45 | 15:00 | 0 | 30 | 3 | 0 | 3 | 0 | 0 | 2 | 3 |
| 15:00 | 15:15 | 0 | 22 | 2 | 0 | 1 | 0 | 0 | 1 | 1 |
| 15:15 | 15:30 | 0 | 28 | 1 | 0 | 3 | 0 | 0 | 3 | 0 |
| 15:30 | 15:45 | 0 | 26 | 3 | 0 | 2 | 0 | 0 | 0 | 0 |
| 15:45 | 16:00 | 0 | 30 | 2 | 0 | 3 | 2 | 0 | 0 | 2 |
| 16:00 | 16:15 | 0 | 28 | 3 | 0 | 4 | 0 | 0 | 0 | 3 |
| 16:15 | 16:30 | 0 | 27 | 1 | 0 | 2 | 0 | 0 | 0 | 0 |

| Peak Time | | East Approach Murrivierie Road | | | Rough Approach Mitchell Street | | | West Approach Murrivierie Road | | | Peak total |
|--------------|------------|--------------------------------|-----|----|--------------------------------|----|---|--------------------------------|---|----|------------|
| Period Start | Period End | U | WB | L | U | R | L | U | R | EB | |
| 8:00 | 9:00 | 0 | 155 | 12 | 0 | 13 | 2 | 0 | 0 | 2 | 184 |
| 15:15 | 16:15 | 0 | 112 | 9 | 0 | 12 | 2 | 0 | 3 | 5 | 143 |



**ANNEXURE C: SIDRA OUTPUT REPORTS - EXISTING
(46 SHEETS)**

LANE SUMMARY

Site: 101 [PM - EX - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | |
|----------------------------|------------------|-----------|---------------|------------------|-----------------|--------------------|------------------|-------------------|-------------|-------------|------------------|----------------|-------------------|
| | DEMAND FLOWS | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| | [Total veh/h | HV] % | | | | | | [Veh | Dist] m | | | | |
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Lane 1 | 45 | 0.0 | 1200 | 0.038 | 100 | 8.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 161 | 5.9 | 528 | 0.305 | 100 | 13.9 | LOS A | 1.4 | 10.5 | Full | 500 | 0.0 | 0.0 |
| Approach | 206 | 4.6 | | 0.305 | | 12.6 | LOS A | 1.4 | 10.5 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | | | | |
| Lane 1 | 197 | 4.8 | 1796 | 0.110 | 100 | 5.6 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 117 | 4.5 | 1895 | 0.062 | 56 ⁵ | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 314 | 4.7 | | 0.110 | | 3.5 | NA | 0.0 | 0.0 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | | | | |
| Lane 1 | 130 | 2.8 | 1915 | 0.068 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 77 | 8.9 | 1132 | 0.068 | 100 | 5.8 | LOS A | 0.3 | 2.3 | Full | 500 | 0.0 | 0.0 |
| Approach | 206 | 5.1 | | 0.068 | | 2.2 | NA | 0.3 | 2.3 | | | | |
| Intersection | 726 | 4.8 | | 0.305 | | 5.7 | NA | 1.4 | 10.5 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|-------|-------|-----------------|-------|------|--|
| South: Mitchell Street (S) | | | | | | | | | | |
| Mov. | L2 | R2 | Total | %HV | | | | | | |
| From S | | | | | Cap. | Deg. | Lane | Prob. | Ov. | |
| To Exit: | W | E | | | veh/h | Satn | Util. | SL | Lane | |
| | | | | | | v/c | % | % | No. | |
| Lane 1 | 45 | - | 45 | 0.0 | 1200 | 0.038 | 100 | NA | NA | |
| Lane 2 | - | 161 | 161 | 5.9 | 528 | 0.305 | 100 | NA | NA | |
| Approach | 45 | 161 | 206 | 4.6 | | 0.305 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | | | | | |
| From E | | | | | Cap. | Deg. | Lane | Prob. | Ov. | |
| To Exit: | S | W | | | veh/h | Satn | Util. | SL | Lane | |
| | | | | | | v/c | % | % | No. | |
| Lane 1 | 197 | - | 197 | 4.8 | 1796 | 0.110 | 100 | NA | NA | |
| Lane 2 | - | 117 | 117 | 4.5 | 1895 | 0.062 | 56 ⁵ | NA | NA | |
| Approach | 197 | 117 | 314 | 4.7 | | 0.110 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | |

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|---------|---------|-------|-------|---------------|---------------------|--------------------|----------------------|--------------------|
| Lane 1 | 130 | - | 130 | 2.8 | 1915 | 0.068 | 100 | NA | NA |
| Lane 2 | 19 | 58 | 77 | 8.9 | 1132 | 0.068 | 100 | NA | NA |
| Approach | 148 | 58 | 206 | 5.1 | | 0.068 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 726 | 4.8 | | 0.305 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.


5 Lane under-utilisation found by the program

| Merge Analysis | | | | | | | | | | | |
|---|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|----------------------------|-------------------|---------------------|----------------------|-----------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Murriverie Road (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Murriverie Road (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |

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MOVEMENT SUMMARY

 **Site: 101 [AM - EX - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [AM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|--------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Old South Head Road (S) | | | | | | | | | | | | | | |
| 1b | L3 | 17 | 6.3 | 17 | 6.3 | 0.011 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 54.6 |
| 1 | L2 | 59 | 3.6 | 59 | 3.6 | 0.937 | 66.0 | LOS E | 15.8 | 115.9 | 1.00 | 1.14 | 1.42 | 30.0 |
| 2 | T1 | 597 | 6.0 | 597 | 6.0 | *0.937 | 61.2 | LOS E | 16.3 | 121.6 | 1.00 | 1.13 | 1.42 | 29.8 |
| 3 | R2 | 215 | 9.8 | 215 | 9.8 | 0.937 | 66.4 | LOS E | 16.3 | 121.6 | 1.00 | 1.12 | 1.42 | 19.8 |
| Approach | | 887 | 6.8 | 887 | 6.8 | 0.937 | 61.7 | LOS E | 16.3 | 121.6 | 0.98 | 1.12 | 1.39 | 28.1 |
| East: Curlewis Street | | | | | | | | | | | | | | |
| 4 | L2 | 459 | 2.1 | 459 | 2.1 | 0.432 | 18.1 | LOS B | 7.6 | 54.2 | 0.60 | 0.76 | 0.60 | 39.7 |
| 4a | L1 | 166 | 0.6 | 166 | 0.6 | 0.960 | 75.3 | LOS F | 12.6 | 89.4 | 1.00 | 1.20 | 1.60 | 20.8 |
| 5 | T1 | 166 | 3.2 | 166 | 3.2 | *0.960 | 69.3 | LOS E | 12.6 | 89.4 | 1.00 | 1.16 | 1.55 | 21.2 |
| 6 | R2 | 59 | 3.6 | 59 | 3.6 | 0.672 | 59.5 | LOS E | 2.4 | 17.6 | 1.00 | 0.82 | 1.15 | 23.6 |
| Approach | | 851 | 2.1 | 851 | 2.1 | 0.960 | 42.2 | LOS C | 12.6 | 89.4 | 0.79 | 0.93 | 1.02 | 28.4 |
| North: Old South Head Road (N) | | | | | | | | | | | | | | |
| 7 | L2 | 25 | 4.2 | 25 | 4.2 | 0.024 | 11.9 | LOS A | 0.3 | 1.8 | 0.41 | 0.63 | 0.41 | 43.6 |
| 8 | T1 | 665 | 2.4 | 665 | 2.4 | *0.921 | 54.1 | LOS D | 19.0 | 136.5 | 1.00 | 1.12 | 1.34 | 31.6 |
| 9a | R1 | 283 | 4.1 | 283 | 4.1 | 0.921 | 58.6 | LOS E | 19.0 | 136.5 | 1.00 | 1.09 | 1.34 | 30.9 |
| 9 | R2 | 77 | 1.4 | 77 | 1.4 | 0.921 | 60.0 | LOS E | 19.0 | 136.5 | 1.00 | 1.09 | 1.34 | 30.5 |
| Approach | | 1051 | 2.8 | 1051 | 2.8 | 0.921 | 54.7 | LOS D | 19.0 | 136.5 | 0.99 | 1.10 | 1.32 | 31.5 |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | |
| 10 | L2 | 82 | 5.1 | 82 | 5.1 | 0.317 | 42.8 | LOS D | 4.2 | 30.2 | 0.89 | 0.75 | 0.89 | 36.0 |
| 11 | T1 | 174 | 3.6 | 174 | 3.6 | 0.792 | 45.6 | LOS D | 4.6 | 33.4 | 0.95 | 0.83 | 1.08 | 23.7 |
| 12 | R2 | 49 | 6.4 | 49 | 6.4 | 0.792 | 59.6 | LOS E | 4.6 | 33.4 | 1.00 | 0.90 | 1.24 | 30.9 |
| 12b | R3 | 1 | 0.0 | 1 | 0.0 | 0.792 | 60.2 | LOS E | 4.6 | 33.4 | 1.00 | 0.90 | 1.24 | 30.8 |
| Approach | | 306 | 4.5 | 306 | 4.5 | 0.792 | 47.2 | LOS D | 4.6 | 33.4 | 0.94 | 0.82 | 1.05 | 28.9 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | |
| 30b | L3 | 13 | 0.0 | 13 | 0.0 | 0.500 | 53.1 | LOS D | 3.8 | 27.6 | 0.99 | 0.78 | 0.99 | 32.2 |
| 30a | L1 | 175 | 6.0 | 175 | 6.0 | *0.913 | 57.3 | LOS E | 6.1 | 43.9 | 0.99 | 0.88 | 1.17 | 30.7 |
| 32a | R1 | 109 | 2.9 | 109 | 2.9 | 0.913 | 67.6 | LOS E | 6.1 | 43.9 | 1.00 | 1.06 | 1.55 | 18.9 |
| Approach | | 297 | 4.6 | 297 | 4.6 | 0.913 | 60.9 | LOS E | 6.1 | 43.9 | 0.99 | 0.94 | 1.30 | 26.9 |
| All Vehicles | | 3392 | 4.0 | 3392 | 4.0 | 0.960 | 53.3 | LOS D | 19.0 | 136.5 | 0.93 | 1.02 | 1.24 | 29.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

| Pedestrian Movement Performance | | | | | | | | | | | |
|---------------------------------|----------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|-------------|--------------|-------------|
| Mov ID | Crossing | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
| | | ped/h | sec | | [Ped ped | Dist] m | | | sec | m | m/sec |
| South: Old South Head Road (S) | | | | | | | | | | | |
| P1 | Full | 55 | 44.3 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 210.6 | 216.2 | 1.03 |
| East: Curlewis Street | | | | | | | | | | | |
| P2 | Full | 28 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 213.0 | 219.4 | 1.03 |
| North: Old South Head Road (N) | | | | | | | | | | | |
| P3 | Full | 34 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 210.5 | 216.2 | 1.03 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| P8 | Full | 35 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 208.0 | 212.9 | 1.02 |
| All Pedestrians | | 152 | 44.3 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 210.4 | 216.0 | 1.03 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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MOVEMENT SUMMARY

 **Site: 101 [AM - EX - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [AM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|-----------------|----------|-----------------|----------|-----------|-------------|------------------|-----------------------|------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | | | | [Veh. veh] | [Dist m] | | | | |
| South: Wellington Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 60 | 1.8 | 60 | 1.8 | 0.278 | 11.7 | LOS A | 0.6 | 4.6 | 0.81 | 0.88 | 0.81 | 43.5 |
| 2 | T1 | 73 | 0.0 | 73 | 0.0 | 0.278 | 11.3 | LOS A | 0.6 | 4.6 | 0.81 | 0.88 | 0.81 | 49.4 |
| 3 | R2 | 13 | 16.7 | 13 | 16.7 | 0.278 | 15.0 | LOS B | 0.6 | 4.6 | 0.81 | 0.88 | 0.81 | 48.4 |
| Approach | | 145 | 2.2 | 145 | 2.2 | 0.278 | 11.8 | LOS A | 0.6 | 4.6 | 0.81 | 0.88 | 0.81 | 47.6 |
| East: Curlewis Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 182 | 1.7 | 182 | 1.7 | 0.340 | 9.4 | LOS A | 0.7 | 5.2 | 0.75 | 0.82 | 0.75 | 45.8 |
| 6 | R2 | 6 | 50.0 | 6 | 50.0 | 0.340 | 14.6 | LOS B | 0.7 | 5.2 | 0.75 | 0.82 | 0.75 | 48.5 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.340 | 13.4 | LOS A | 0.7 | 5.2 | 0.75 | 0.82 | 0.75 | 50.9 |
| Approach | | 194 | 3.3 | 194 | 3.3 | 0.340 | 9.6 | LOS A | 0.7 | 5.2 | 0.75 | 0.82 | 0.75 | 46.2 |
| North: Wellington Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 11 | 0.0 | 11 | 0.0 | 0.630 | 7.0 | LOS A | 2.1 | 14.7 | 0.57 | 0.65 | 0.57 | 50.4 |
| 9 | R2 | 592 | 2.0 | 592 | 2.0 | 0.630 | 9.4 | LOS A | 2.1 | 14.7 | 0.57 | 0.65 | 0.57 | 46.1 |
| 9u | U | 1 | 0.0 | 1 | 0.0 | 0.630 | 10.7 | LOS A | 2.1 | 14.7 | 0.57 | 0.65 | 0.57 | 51.1 |
| Approach | | 603 | 1.9 | 603 | 1.9 | 0.630 | 9.3 | LOS A | 2.1 | 14.7 | 0.57 | 0.65 | 0.57 | 46.3 |
| West: Curlewis Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 1 | 0.0 | 0.152 | 5.8 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 49.6 |
| 11 | T1 | 161 | 5.9 | 161 | 5.9 | 0.152 | 5.5 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 50.3 |
| 12u | U | 4 | 25.0 | 4 | 25.0 | 0.152 | 10.0 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 35.9 |
| Approach | | 166 | 6.3 | 166 | 6.3 | 0.152 | 5.6 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 50.2 |
| All Vehicles | | 1108 | 2.8 | 1108 | 2.8 | 0.630 | 9.1 | LOS A | 2.1 | 14.7 | 0.58 | 0.69 | 0.58 | 47.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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LANE SUMMARY

 **Site: 101 [AM - EX - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [AM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------------|-----------------|----------|-----------------|----------|------------------|-----------|-----------------|-------------|------------------|-----------------------|------------|-------------|-------------|--------------------|-------------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Old South Head Road (S) | | | | | | | | | | | | | | | |
| Lane 1 | 17 | 6.3 | 17 | 6.3 | 1562 | 0.011 | 100 | 6.9 | LOS A | 0.0 | 0.0 | Short | 6 | 0.0 | NA |
| Lane 2 | 431 | 5.7 | 431 | 5.7 | 460 ¹ | 0.937 | 100 | 62.1 | LOS E | 15.8 | 115.9 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 3 | 440 | 7.9 | 440 | 7.9 | 469 | 0.937 | 100 | 63.5 | LOS E | 16.3 | 121.6 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Approach | 887 | 6.8 | 887 | 6.8 | | 0.937 | | 61.7 | LOS E | 16.3 | 121.6 | | | | |
| East: Curlewis Street | | | | | | | | | | | | | | | |
| Lane 1 | 459 | 2.1 | 459 | 2.1 | 1062 | 0.432 | 100 | 18.1 | LOS B | 7.6 | 54.2 | Full | 130 | 0.0 | 15.4 ⁸ |
| Lane 2 | 316 | 1.8 | 316 | 1.8 | 329 ¹ | 0.960 | 100 | 73.3 | LOS F | 12.6 | 89.4 | Short | 92 | 0.0 | NA |
| Lane 3 | 76 | 3.5 | 76 | 3.5 | 113 | 0.672 | 70 ⁷ | 58.3 | LOS E | 2.4 | 17.6 | Short | 42 | 0.0 | NA |
| Approach | 851 | 2.1 | 851 | 2.1 | | 0.960 | | 42.2 | LOS C | 12.6 | 89.4 | | | | |
| North: Old South Head Road (N) | | | | | | | | | | | | | | | |
| Lane 1 | 25 | 4.2 | 25 | 4.2 | 1073 | 0.024 | 100 | 11.9 | LOS A | 0.3 | 1.8 | Short | 10 | 0.0 | NA |
| Lane 2 | 508 | 2.4 | 508 | 2.4 | 552 ¹ | 0.921 | 100 | 54.0 | LOS D | 18.4 | 131.4 | Full | 500 | 0.0 | 0.0 |
| Lane 3 | 518 | 3.2 | 518 | 3.2 | 562 | 0.921 | 100 | 57.5 | LOS E | 19.0 | 136.5 | Full | 500 | 0.0 | 0.0 |
| Approach | 1051 | 2.8 | 1051 | 2.8 | | 0.921 | | 54.7 | LOS D | 19.0 | 136.5 | | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | | |
| Lane 1 | 164 | 4.4 | 164 | 4.4 | 517 | 0.317 | 40 ⁷ | 39.5 | LOS C | 4.2 | 30.2 | Short (P) | 35 | 40.0 ^{N2} | NA |
| Lane 2 | 143 | 4.6 | 143 | 4.6 | 180 | 0.792 | 100 | 56.0 | LOS D | 4.6 | 33.4 | Full | 500 | 40.0 ^{N2} | 0.0 |
| Approach | 306 | 4.5 | 306 | 4.5 | | 0.792 | | 47.2 | LOS D | 4.6 | 33.4 | | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | | |
| Lane 1 | 129 | 5.4 | 129 | 5.4 | 259 | 0.500 | 55 ⁶ | 52.2 | LOS D | 3.8 | 27.6 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 2 | 167 | 4.0 | 167 | 4.0 | 183 | 0.913 | 100 | 67.7 | LOS E | 6.1 | 43.9 | Full | 500 | 0.0 | 0.0 |
| Approach | 297 | 4.6 | 297 | 4.6 | | 0.913 | | 60.9 | LOS E | 6.1 | 43.9 | | | | |
| Intersection | 3392 | 4.0 | 3392 | 4.0 | | 0.960 | | 53.3 | LOS D | 19.0 | 136.5 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
- ⁶ Lane under-utilisation due to downstream effects
- ⁷ Lane under-utilisation specified by the user
- ⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.
- ^{N2} Capacity Adjustment specified by user.

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|--------------------------------|----------|----------|----------|----------|-------|---------------|---------------------|---------------------|----------------------|----------------------|--------------------|
| South: Old South Head Road (S) | | | | | | | | | | | |
| Mov. From S To Exit: | L3 SW | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 17 | - | - | - | 17 | 6.3 | 1562 | 0.011 | 100 | 0.0 | 2 |
| Lane 2 | - | 59 | 372 | - | 431 | 5.7 | 460 ¹ | 0.937 | 100 | NA | NA |
| Lane 3 | - | - | 225 | 215 | 440 | 7.9 | 469 | 0.937 | 100 | NA | NA |
| Approach | 17 | 59 | 597 | 215 | 887 | 6.8 | | 0.937 | | | |
| East: Curlewis Street | | | | | | | | | | | |
| Mov. From E To Exit: | L2 S | L1 SW | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 459 | - | - | - | 459 | 2.1 | 1062 | 0.432 | 100 | NA | NA |
| Lane 2 | - | 166 | 149 | - | 316 | 1.8 | 329 ¹ | 0.960 | 100 | 47.3 | 1 |
| Lane 3 | - | - | 17 | 59 | 76 | 3.5 | 113 | 0.672 | 70 ⁷ | 0.0 | 2 |
| Approach | 459 | 166 | 166 | 59 | 851 | 2.1 | | 0.960 | | | |
| North: Old South Head Road (N) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R1 SW | R2 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 25 | - | - | - | 25 | 4.2 | 1073 | 0.024 | 100 | 0.0 | 2 |
| Lane 2 | - | 508 | - | - | 508 | 2.4 | 552 ¹ | 0.921 | 100 | NA | NA |
| Lane 3 | - | 158 | 283 | 77 | 518 | 3.2 | 562 | 0.921 | 100 | NA | NA |
| Approach | 25 | 665 | 283 | 77 | 1051 | 2.8 | | 0.921 | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | R3 SW | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 82 | 82 | - | - | 164 | 4.4 | 517 | 0.317 | 40 ⁷ | 36.2 | 2 |
| Lane 2 | - | 92 | 49 | 1 | 143 | 4.6 | 180 | 0.792 | 100 | NA | NA |
| Approach | 82 | 174 | 49 | 1 | 306 | 4.5 | | 0.792 | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| Mov. From SW To Exit: | L3 W | L1 N | R1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 13 | 117 | - | 129 | 5.4 | 259 | 0.500 | 55 ⁶ | NA | NA | |
| Lane 2 | - | 58 | 109 | 167 | 4.0 | 183 | 0.913 | 100 | NA | NA | |
| Approach | 13 | 175 | 109 | 297 | 4.6 | | 0.913 | | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 3392 | 4.0 | | 0.960 | | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
- ⁶ Lane under-utilisation due to downstream effects
- ⁷ Lane under-utilisation specified by the user

| Merge Analysis | | | | | | | | | | | |
|-------------------------------------|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|-------------------------------|------------------------|---------------------|----------------------|-----------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Old South Head Road (S) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|-----------------------------|-------|---------------------------|-----|------|------|-----|------|-------|-----|-----|
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Curlewis Street Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Old South Head Road (N) Merge Type: Priority | | | | | | | | | | | | |
| Exit Short Lane | 1 | 100 | 0.0 | 342 | 352 | 3.00 | 2.00 | 571 | 1442 | 0.396 | 0.5 | 1.1 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 342 | 1800 | 0.190 | 0.0 | 0.0 |
| West Exit: O'Sullivan Road (W) Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| SouthWest Exit: Birriga Road (SW) Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |


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LANE SUMMARY

 **Site: 101 [AM - EX - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [AM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|------------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Wellington Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 145 | 2.2 | 145 | 2.2 | 523 | 0.278 | 100 | 11.8 | LOS A | 0.6 | 4.6 | Full | 500 | -7.0 ^{N3} | 0.0 |
| Approach | 145 | 2.2 | 145 | 2.2 | | 0.278 | | 11.8 | LOS A | 0.6 | 4.6 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 194 | 3.3 | 194 | 3.3 | 569 | 0.340 | 100 | 9.6 | LOS A | 0.7 | 5.2 | Full | 500 | -14.6 ^{N3} | 0.0 |
| Approach | 194 | 3.3 | 194 | 3.3 | | 0.340 | | 9.6 | LOS A | 0.7 | 5.2 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 603 | 1.9 | 603 | 1.9 | 957 | 0.630 | 100 | 9.3 | LOS A | 2.1 | 14.7 | Full | 500 | -15.2 ^{N3} | 0.0 |
| Approach | 603 | 1.9 | 603 | 1.9 | | 0.630 | | 9.3 | LOS A | 2.1 | 14.7 | | | | |
| West: Curlewis Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 166 | 6.3 | 166 | 6.3 | 1096 | 0.152 | 100 | 5.6 | LOS A | 0.3 | 2.2 | Full | 130 | -0.5 ^{N3} | 0.0 |
| Approach | 166 | 6.3 | 166 | 6.3 | | 0.152 | | 5.6 | LOS A | 0.3 | 2.2 | | | | |
| Intersection | 1108 | 2.8 | 1108 | 2.8 | | 0.630 | | 9.1 | LOS A | 2.1 | 14.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|------------------------------|-----|----|----|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| South: Wellington Street (S) | | | | | | | | | | | |
| Mov. | L2 | T1 | R2 | Total | %HV | | | | | | |
| From S | | | | | | | | | | | |
| To Exit: | W | N | E | | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 60 | 73 | 13 | 145 | 2.2 | 523 | 0.278 | 100 | NA | NA | |
| Approach | 60 | 73 | 13 | 145 | 2.2 | | 0.278 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | |
| Mov. | T1 | R2 | U | Total | %HV | | | | | | |
| From E | | | | | | | | | | | |
| To Exit: | W | N | E | | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 182 | 6 | 5 | 194 | 3.3 | 569 | 0.340 | 100 | NA | NA | |
| Approach | 182 | 6 | 5 | 194 | 3.3 | | 0.340 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | |

| Mov. From N To Exit: | L2 E | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|---------|---------|--------|-------|-----|---------------|---------------------|--------------------|----------------------|--------------------|
| Lane 1 | 11 | 592 | 1 | 603 | 1.9 | 957 | 0.630 | 100 | NA | NA |
| Approach | 11 | 592 | 1 | 603 | 1.9 | | 0.630 | | | |
| West: Curlewis Street (W) | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 1 | 161 | 4 | 166 | 6.3 | 1096 | 0.152 | 100 | NA | NA |
| Approach | 1 | 161 | 4 | 166 | 6.3 | | 0.152 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | |
| Intersection | 1108 | 2.8 | | 0.630 | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.


| Merge Analysis | | | | | | | | | | | |
|---|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|-------------------------------|---------------|----------------|-----------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| East Exit: Curlewis Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wellington Street (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Curlewis Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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MOVEMENT SUMMARY

 **Site: 101 [PM - EX - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [PM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|--------------------------------|------|-----------------|----------|-----------------|----------|-----------|-------------|------------------|-----------------------|------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | | | | [Veh. veh] | [Dist m] | | | | km/h |
| South: Old South Head Road (S) | | | | | | | | | | | | | | |
| 1b | L3 | 15 | 0.0 | 15 | 0.0 | 0.009 | 6.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.58 | 0.00 | 54.8 |
| 1 | L2 | 42 | 5.0 | 42 | 5.0 | 0.870 | 52.8 | LOS D | 15.2 | 109.6 | 1.00 | 1.01 | 1.20 | 33.6 |
| 2 | T1 | 638 | 3.0 | 638 | 3.0 | *0.870 | 48.1 | LOS D | 15.8 | 112.3 | 1.00 | 1.00 | 1.20 | 33.4 |
| 3 | R2 | 281 | 1.1 | 281 | 1.1 | 0.870 | 53.0 | LOS D | 15.8 | 112.3 | 1.00 | 0.98 | 1.20 | 22.8 |
| Approach | | 976 | 2.5 | 976 | 2.5 | 0.870 | 49.1 | LOS D | 15.8 | 112.3 | 0.98 | 0.99 | 1.18 | 31.2 |
| East: Curlewis Street | | | | | | | | | | | | | | |
| 4 | L2 | 474 | 5.3 | 474 | 5.3 | 0.464 | 19.0 | LOS B | 8.2 | 60.0 | 0.63 | 0.77 | 0.63 | 39.0 |
| 4a | L1 | 86 | 1.2 | 86 | 1.2 | 0.858 | 58.8 | LOS E | 7.1 | 50.6 | 1.00 | 0.99 | 1.32 | 24.5 |
| 5 | T1 | 127 | 1.7 | 127 | 1.7 | 0.858 | 54.6 | LOS D | 7.1 | 50.6 | 1.00 | 0.99 | 1.32 | 24.6 |
| 6 | R2 | 56 | 1.9 | 56 | 1.9 | 0.705 | 63.0 | LOS E | 1.8 | 13.1 | 1.00 | 0.81 | 1.23 | 22.5 |
| Approach | | 743 | 4.0 | 743 | 4.0 | 0.858 | 33.0 | LOS C | 8.2 | 60.0 | 0.76 | 0.84 | 0.87 | 31.8 |
| North: Old South Head Road (N) | | | | | | | | | | | | | | |
| 7 | L2 | 44 | 2.4 | 44 | 2.4 | 0.040 | 11.6 | LOS A | 0.4 | 3.1 | 0.41 | 0.64 | 0.41 | 43.9 |
| 8 | T1 | 786 | 3.9 | 786 | 3.9 | *0.861 | 43.1 | LOS D | 16.1 | 117.2 | 0.99 | 1.00 | 1.18 | 35.0 |
| 9a | R1 | 122 | 6.0 | 122 | 6.0 | 0.861 | 47.6 | LOS D | 16.1 | 117.2 | 1.00 | 1.01 | 1.18 | 34.5 |
| 9 | R2 | 61 | 3.4 | 61 | 3.4 | 0.861 | 49.0 | LOS D | 16.1 | 117.2 | 1.00 | 1.01 | 1.18 | 33.9 |
| Approach | | 1014 | 4.0 | 1014 | 4.0 | 0.861 | 42.7 | LOS D | 16.1 | 117.2 | 0.96 | 0.99 | 1.15 | 35.0 |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | |
| 10 | L2 | 74 | 2.9 | 74 | 2.9 | 0.359 | 47.6 | LOS D | 3.7 | 26.7 | 0.94 | 0.76 | 0.94 | 34.4 |
| 11 | T1 | 176 | 1.8 | 176 | 1.8 | 0.897 | 52.8 | LOS D | 5.4 | 38.4 | 0.98 | 0.91 | 1.27 | 21.8 |
| 12 | R2 | 45 | 4.7 | 45 | 4.7 | 0.897 | 65.4 | LOS E | 5.4 | 38.4 | 1.00 | 1.00 | 1.47 | 29.6 |
| 12b | R3 | 1 | 0.0 | 1 | 0.0 | *0.897 | 66.0 | LOS E | 5.4 | 38.4 | 1.00 | 1.00 | 1.47 | 29.5 |
| Approach | | 296 | 2.5 | 296 | 2.5 | 0.897 | 53.5 | LOS D | 5.4 | 38.4 | 0.97 | 0.89 | 1.22 | 26.8 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | |
| 30b | L3 | 9 | 0.0 | 9 | 0.0 | 0.473 | 51.0 | LOS D | 4.2 | 30.3 | 0.97 | 0.79 | 0.97 | 32.9 |
| 30a | L1 | 208 | 5.1 | 208 | 5.1 | 0.865 | 53.7 | LOS D | 6.5 | 47.2 | 0.98 | 0.86 | 1.11 | 31.7 |
| 32a | R1 | 120 | 3.5 | 120 | 3.5 | *0.865 | 60.4 | LOS E | 6.5 | 47.2 | 1.00 | 1.00 | 1.37 | 20.4 |
| Approach | | 338 | 4.4 | 338 | 4.4 | 0.865 | 56.0 | LOS D | 6.5 | 47.2 | 0.99 | 0.91 | 1.20 | 28.3 |
| All Vehicles | | 3366 | 3.5 | 3366 | 3.5 | 0.897 | 44.7 | LOS D | 16.1 | 117.2 | 0.93 | 0.94 | 1.11 | 31.8 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

| Pedestrian Movement Performance | | | | | | | | | | | |
|---------------------------------|----------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|-------------|--------------|-------------|
| Mov ID | Crossing | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
| | | ped/h | sec | | [Ped ped | Dist] m | | | sec | m | m/sec |
| South: Old South Head Road (S) | | | | | | | | | | | |
| P1 | Full | 19 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 222.5 | 214.0 | 0.96 |
| East: Curlewis Street | | | | | | | | | | | |
| P2 | Full | 14 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 213.0 | 219.4 | 1.03 |
| North: Old South Head Road (N) | | | | | | | | | | | |
| P3 | Full | 19 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 210.5 | 216.2 | 1.03 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| P8 | Full | 39 | 44.3 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 208.0 | 212.9 | 1.02 |
| All Pedestrians | | 91 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 212.3 | 214.8 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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MOVEMENT SUMMARY

 **Site: 101 [PM - EX - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [PM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Wellington Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 49 | 0.0 | 49 | 0.0 | 0.291 | 11.0 | LOS A | 0.7 | 5.2 | 0.79 | 0.86 | 0.79 | 44.0 |
| 2 | T1 | 104 | 4.0 | 104 | 4.0 | 0.291 | 10.9 | LOS A | 0.7 | 5.2 | 0.79 | 0.86 | 0.79 | 49.6 |
| 3 | R2 | 21 | 0.0 | 21 | 0.0 | 0.291 | 13.4 | LOS A | 0.7 | 5.2 | 0.79 | 0.86 | 0.79 | 49.4 |
| Approach | | 175 | 2.4 | 175 | 2.4 | 0.291 | 11.2 | LOS A | 0.7 | 5.2 | 0.79 | 0.86 | 0.79 | 48.6 |
| East: Curlewis Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 172 | 9.2 | 172 | 9.2 | 0.273 | 9.1 | LOS A | 0.7 | 5.0 | 0.72 | 0.79 | 0.72 | 46.2 |
| 6 | R2 | 9 | 0.0 | 9 | 0.0 | 0.273 | 11.4 | LOS A | 0.7 | 5.0 | 0.72 | 0.79 | 0.72 | 50.8 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.273 | 12.8 | LOS A | 0.7 | 5.0 | 0.72 | 0.79 | 0.72 | 51.1 |
| Approach | | 186 | 8.5 | 186 | 8.5 | 0.273 | 9.3 | LOS A | 0.7 | 5.0 | 0.72 | 0.79 | 0.72 | 46.8 |
| North: Wellington Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 12 | 0.0 | 12 | 0.0 | 0.505 | 7.3 | LOS A | 1.8 | 13.1 | 0.61 | 0.67 | 0.61 | 50.2 |
| 9 | R2 | 518 | 3.0 | 518 | 3.0 | 0.505 | 9.8 | LOS A | 1.8 | 13.1 | 0.61 | 0.67 | 0.61 | 45.8 |
| 9u | U | 1 | 0.0 | 1 | 0.0 | 0.505 | 11.1 | LOS A | 1.8 | 13.1 | 0.61 | 0.67 | 0.61 | 50.9 |
| Approach | | 531 | 3.0 | 531 | 3.0 | 0.505 | 9.7 | LOS A | 1.8 | 13.1 | 0.61 | 0.67 | 0.61 | 46.0 |
| West: Curlewis Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 1 | 0.0 | 0.197 | 6.1 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 49.1 |
| 11 | T1 | 193 | 2.2 | 193 | 2.2 | 0.197 | 5.8 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 50.0 |
| 12u | U | 17 | 0.0 | 17 | 0.0 | 0.197 | 9.8 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 34.9 |
| Approach | | 211 | 2.0 | 211 | 2.0 | 0.197 | 6.1 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 49.6 |
| All Vehicles | | 1102 | 3.6 | 1102 | 3.6 | 0.505 | 9.2 | LOS A | 1.8 | 13.1 | 0.59 | 0.70 | 0.59 | 47.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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LANE SUMMARY

 **Site: 101 [PM - EX - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [PM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------------|-----------------|----------|-----------------|----------|------------------|-----------|-----------------|-------------|------------------|-----------------------|------------|-------------|-------------|--------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Old South Head Road (S) | | | | | | | | | | | | | | | |
| Lane 1 | 15 | 0.0 | 15 | 0.0 | 1625 | 0.009 | 100 | 6.8 | LOS A | 0.0 | 0.0 | Short | 6 | 0.0 | NA |
| Lane 2 | 474 | 3.2 | 474 | 3.2 | 545 ¹ | 0.870 | 100 | 48.8 | LOS D | 15.2 | 109.6 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 3 | 487 | 1.9 | 487 | 1.9 | 560 | 0.870 | 100 | 50.7 | LOS D | 15.8 | 112.3 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Approach | 976 | 2.5 | 976 | 2.5 | | 0.870 | | 49.1 | LOS D | 15.8 | 112.3 | | | | |
| East: Curlewis Street | | | | | | | | | | | | | | | |
| Lane 1 | 474 | 5.3 | 474 | 5.3 | 1020 | 0.464 | 100 | 19.0 | LOS B | 8.2 | 60.0 | Full | 130 | 0.0 | 0.0 |
| Lane 2 | 214 | 1.5 | 214 | 1.5 | 249 | 0.858 | 100 | 56.3 | LOS D | 7.1 | 50.6 | Short | 92 | 0.0 | NA |
| Lane 3 | 56 | 1.9 | 56 | 1.9 | 79 | 0.705 | 82 ⁵ | 63.0 | LOS E | 1.8 | 13.1 | Short | 42 | 0.0 | NA |
| Approach | 743 | 4.0 | 743 | 4.0 | | 0.858 | | 33.0 | LOS C | 8.2 | 60.0 | | | | |
| North: Old South Head Road (N) | | | | | | | | | | | | | | | |
| Lane 1 | 44 | 2.4 | 44 | 2.4 | 1095 | 0.040 | 100 | 11.6 | LOS A | 0.4 | 3.1 | Short | 10 | 0.0 | NA |
| Lane 2 | 469 | 3.9 | 469 | 3.9 | 545 ¹ | 0.861 | 100 | 43.0 | LOS D | 14.9 | 107.6 | Full | 500 | 0.0 | 0.0 |
| Lane 3 | 500 | 4.4 | 500 | 4.4 | 581 | 0.861 | 100 | 45.1 | LOS D | 16.1 | 117.2 | Full | 500 | 0.0 | 0.0 |
| Approach | 1014 | 4.0 | 1014 | 4.0 | | 0.861 | | 42.7 | LOS D | 16.1 | 117.2 | | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | | |
| Lane 1 | 139 | 2.4 | 139 | 2.4 | 386 | 0.359 | 40 ⁷ | 44.5 | LOS D | 3.7 | 26.7 | Short (P) | 35 | 40.0 ^{N2} | NA |
| Lane 2 | 157 | 2.6 | 157 | 2.6 | 175 | 0.897 | 100 | 61.4 | LOS E | 5.4 | 38.4 | Full | 500 | 40.0 ^{N2} | 0.0 |
| Approach | 296 | 2.5 | 296 | 2.5 | | 0.897 | | 53.5 | LOS D | 5.4 | 38.4 | | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | | |
| Lane 1 | 146 | 4.7 | 146 | 4.7 | 309 | 0.473 | 55 ⁶ | 50.2 | LOS D | 4.2 | 30.3 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 2 | 192 | 4.1 | 192 | 4.1 | 221 | 0.865 | 100 | 60.5 | LOS E | 6.5 | 47.2 | Full | 500 | 0.0 | 0.0 |
| Approach | 338 | 4.4 | 338 | 4.4 | | 0.865 | | 56.0 | LOS D | 6.5 | 47.2 | | | | |
| Intersection | 3366 | 3.5 | 3366 | 3.5 | | 0.897 | | 44.7 | LOS D | 16.1 | 117.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

⁷ Lane under-utilisation specified by the user

^{N2} Capacity Adjustment specified by user.

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|--------------------------------|----------|----------|----------|----------|-------|---------------|---------------------|---------------------|----------------------|----------------------|--------------------|
| South: Old South Head Road (S) | | | | | | | | | | | |
| Mov. From S To Exit: | L3 SW | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 15 | - | - | - | 15 | 0.0 | 1625 | 0.009 | 100 | 0.0 | 2 |
| Lane 2 | - | 42 | 432 | - | 474 | 3.2 | 545 ¹ | 0.870 | 100 | NA | NA |
| Lane 3 | - | - | 206 | 281 | 487 | 1.9 | 560 | 0.870 | 100 | NA | NA |
| Approach | 15 | 42 | 638 | 281 | 976 | 2.5 | | 0.870 | | | |
| East: Curlewis Street | | | | | | | | | | | |
| Mov. From E To Exit: | L2 S | L1 SW | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 474 | - | - | - | 474 | 5.3 | 1020 | 0.464 | 100 | NA | NA |
| Lane 2 | - | 86 | 127 | - | 214 | 1.5 | 249 | 0.858 | 100 | 0.0 | 1 |
| Lane 3 | - | - | - | 56 | 56 | 1.9 | 79 | 0.705 | 82 ⁵ | 0.0 | 2 |
| Approach | 474 | 86 | 127 | 56 | 743 | 4.0 | | 0.858 | | | |
| North: Old South Head Road (N) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R1 SW | R2 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 44 | - | - | - | 44 | 2.4 | 1095 | 0.040 | 100 | 0.0 | 2 |
| Lane 2 | - | 469 | - | - | 469 | 3.9 | 545 ¹ | 0.861 | 100 | NA | NA |
| Lane 3 | - | 317 | 122 | 61 | 500 | 4.4 | 581 | 0.861 | 100 | NA | NA |
| Approach | 44 | 786 | 122 | 61 | 1014 | 4.0 | | 0.861 | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | R3 SW | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 74 | 65 | - | - | 139 | 2.4 | 386 | 0.359 | 40 ⁷ | 25.0 | 2 |
| Lane 2 | - | 111 | 45 | 1 | 157 | 2.6 | 175 | 0.897 | 100 | NA | NA |
| Approach | 74 | 176 | 45 | 1 | 296 | 2.5 | | 0.897 | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| Mov. From SW To Exit: | L3 W | L1 N | R1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 9 | 137 | - | 146 | 4.7 | 309 | 0.473 | 55 ⁶ | NA | NA | |
| Lane 2 | - | 72 | 120 | 192 | 4.1 | 221 | 0.865 | 100 | NA | NA | |
| Approach | 9 | 208 | 120 | 338 | 4.4 | | 0.865 | | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 3366 | 3.5 | 0.897 | | | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
- ⁵ Lane under-utilisation found by the program
- ⁶ Lane under-utilisation due to downstream effects
- ⁷ Lane under-utilisation specified by the user

| Merge Analysis | | | | | | | | | | | |
|-------------------------------------|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|--|------------------------|---------------------|----------------------|-----------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Old South Head Road (S) | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|-------------------------------------|---|-----------------------------|-------|---------------------------|-----|------|------|-----|------|-------|-----|-----|--|
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | | |
| East Exit: Curlewis Street | | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |
| North Exit: Old South Head Road (N) | | | | | | | | | | | | | |
| Merge Type: Priority | | | | | | | | | | | | | |
| Exit Short Lane | 1 | 100 | 0.0 | 333 | 339 | 3.00 | 2.00 | 642 | 1455 | 0.442 | 0.5 | 1.2 | |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 333 | 1800 | 0.185 | 0.0 | 0.0 | |
| West Exit: O'Sullivan Road (W) | | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |
| SouthWest Exit: Birriga Road (SW) | | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |

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LANE SUMMARY

 **Site: 101 [PM - EX - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [PM EX (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|------------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Wellington Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 175 | 2.4 | 175 | 2.4 | 601 | 0.291 | 100 | 11.2 | LOS A | 0.7 | 5.2 | Full | 500 | 0.0 | 0.0 |
| Approach | 175 | 2.4 | 175 | 2.4 | | 0.291 | | 11.2 | LOS A | 0.7 | 5.2 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 186 | 8.5 | 186 | 8.5 | 683 | 0.273 | 100 | 9.3 | LOS A | 0.7 | 5.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 186 | 8.5 | 186 | 8.5 | | 0.273 | | 9.3 | LOS A | 0.7 | 5.0 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 531 | 3.0 | 531 | 3.0 | 1051 | 0.505 | 100 | 9.7 | LOS A | 1.8 | 13.1 | Full | 500 | 0.0 | 0.0 |
| Approach | 531 | 3.0 | 531 | 3.0 | | 0.505 | | 9.7 | LOS A | 1.8 | 13.1 | | | | |
| West: Curlewis Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 211 | 2.0 | 211 | 2.0 | 1066 | 0.197 | 100 | 6.1 | LOS A | 0.4 | 2.9 | Full | 130 | 0.0 | 0.0 |
| Approach | 211 | 2.0 | 211 | 2.0 | | 0.197 | | 6.1 | LOS A | 0.4 | 2.9 | | | | |
| Intersection | 1102 | 3.6 | 1102 | 3.6 | | 0.505 | | 9.2 | LOS A | 1.8 | 13.1 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|------------------------------|-----|-----|----|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| South: Wellington Street (S) | | | | | | | | | | | |
| Mov. From S To Exit: | L2 | T1 | R2 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | N | E | | | | | | | | |
| Lane 1 | 49 | 104 | 21 | 175 | 2.4 | | 601 | 0.291 | 100 | NA | NA |
| Approach | 49 | 104 | 21 | 175 | 2.4 | | | 0.291 | | | |
| East: Curlewis Street (E) | | | | | | | | | | | |
| Mov. From E To Exit: | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | N | E | | | | | | | | |
| Lane 1 | 172 | 9 | 5 | 186 | 8.5 | | 683 | 0.273 | 100 | NA | NA |
| Approach | 172 | 9 | 5 | 186 | 8.5 | | | 0.273 | | | |
| North: Wellington Street (N) | | | | | | | | | | | |
| Mov. | L2 | R2 | U | Total | %HV | | | Deg. | Lane | Prob. | Ov. |

| From N To Exit: | E | W | N | | | Cap. veh/h | Satn v/c | Util. % | SL Ov. % | Lane No. |
|---------------------------|------|-----|----|-------|-----|---------------|---------------------|--------------------|----------------------|--------------------|
| Lane 1 | 12 | 518 | 1 | 531 | 3.0 | 1051 | 0.505 | 100 | NA | NA |
| Approach | 12 | 518 | 1 | 531 | 3.0 | | 0.505 | | | |
| West: Curlewis Street (W) | | | | | | | | | | |
| Mov. | L2 | T1 | U | Total | %HV | | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| From W To Exit: | N | E | W | | | Cap. veh/h | | | | |
| Lane 1 | 1 | 193 | 17 | 211 | 2.0 | 1066 | 0.197 | 100 | NA | NA |
| Approach | 1 | 193 | 17 | 211 | 2.0 | | 0.197 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | |
| Intersection | 1102 | 3.6 | | 0.505 | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|-----------------------------------|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|-------------------------------|-------------------|---------------------|----------------------|-----------------------|
| East Exit: Curlewis Street (E) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wellington Street (N) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Curlewis Street (W) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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MOVEMENT SUMMARY

 **Site: 101 [AM - EX - Blair Street / Glenayr Avenue (Site Folder: General)]**

 **Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]**

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 588 | 3.0 | 588 | 3.0 | 0.314 | 0.1 | LOS A | 0.0 | 0.3 | 0.02 | 0.01 | 0.02 | 59.7 |
| 6 | R2 | 6 | 0.0 | 6 | 0.0 | 0.314 | 8.6 | LOS A | 0.0 | 0.3 | 0.02 | 0.01 | 0.02 | 56.1 |
| Approach | | 595 | 3.0 | 595 | 3.0 | 0.314 | 0.2 | NA | 0.0 | 0.3 | 0.02 | 0.01 | 0.02 | 59.7 |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | |
| 7 | L2 | 23 | 0.0 | 23 | 0.0 | 0.354 | 11.9 | LOS A | 0.5 | 3.8 | 0.76 | 1.05 | 0.97 | 38.0 |
| 9 | R2 | 95 | 1.1 | 95 | 1.1 | 0.354 | 21.1 | LOS B | 0.5 | 3.8 | 0.76 | 1.05 | 0.97 | 45.0 |
| Approach | | 118 | 0.9 | 118 | 0.9 | 0.354 | 19.3 | LOS B | 0.5 | 3.8 | 0.76 | 1.05 | 0.97 | 44.1 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 93 | 3.4 | 93 | 3.4 | 0.275 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 57.1 |
| 11 | T1 | 423 | 5.0 | 423 | 5.0 | 0.275 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 57.9 |
| Approach | | 516 | 4.7 | 516 | 4.7 | 0.275 | 1.1 | NA | 0.0 | 0.0 | 0.00 | 0.11 | 0.00 | 57.7 |
| All Vehicles | | 1228 | 3.5 | 1228 | 3.5 | 0.354 | 2.4 | NA | 0.5 | 3.8 | 0.08 | 0.15 | 0.10 | 56.2 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [AM - EX - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 47 | 2.2 | 47 | 2.2 | 0.166 | 8.2 | LOS A | 0.3 | 2.1 | 0.68 | 0.74 | 0.68 | 47.0 |
| 2 | T1 | 38 | 2.8 | 38 | 2.8 | 0.166 | 8.5 | LOS A | 0.3 | 2.1 | 0.68 | 0.74 | 0.68 | 52.3 |
| 3 | R2 | 4 | 25.0 | 4 | 25.0 | 0.166 | 12.9 | LOS A | 0.3 | 2.1 | 0.68 | 0.74 | 0.68 | 47.0 |
| 3u | U | 3 | 33.3 | 3 | 33.3 | 0.166 | 15.0 | LOS B | 0.3 | 2.1 | 0.68 | 0.74 | 0.68 | 51.3 |
| Approach | | 93 | 4.5 | 93 | 4.5 | 0.166 | 8.8 | LOS A | 0.3 | 2.1 | 0.68 | 0.74 | 0.68 | 50.0 |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 4 | L2 | 8 | 12.5 | 8 | 12.5 | 0.667 | 7.9 | LOS A | 1.4 | 10.0 | 0.72 | 0.87 | 0.94 | 44.8 |
| 5 | T1 | 323 | 2.3 | 323 | 2.3 | 0.667 | 8.2 | LOS A | 1.4 | 10.0 | 0.72 | 0.87 | 0.94 | 12.0 |
| 6 | R2 | 44 | 2.4 | 44 | 2.4 | 0.667 | 11.1 | LOS A | 1.4 | 10.0 | 0.72 | 0.87 | 0.94 | 46.3 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.667 | 12.8 | LOS A | 1.4 | 10.0 | 0.72 | 0.87 | 0.94 | 12.0 |
| Approach | | 381 | 2.5 | 381 | 2.5 | 0.667 | 8.6 | LOS A | 1.4 | 10.0 | 0.72 | 0.87 | 0.94 | 25.1 |
| North: Mitchell Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 29 | 0.0 | 29 | 0.0 | 0.523 | 6.5 | LOS A | 1.0 | 7.4 | 0.58 | 0.71 | 0.58 | 46.6 |
| 8 | T1 | 145 | 1.4 | 145 | 1.4 | 0.523 | 6.8 | LOS A | 1.0 | 7.4 | 0.58 | 0.71 | 0.58 | 52.0 |
| 9 | R2 | 209 | 4.5 | 209 | 4.5 | 0.523 | 10.4 | LOS A | 1.0 | 7.4 | 0.58 | 0.71 | 0.58 | 46.6 |
| 9u | U | 8 | 0.0 | 8 | 0.0 | 0.523 | 12.0 | LOS A | 1.0 | 7.4 | 0.58 | 0.71 | 0.58 | 52.4 |
| Approach | | 393 | 2.9 | 393 | 2.9 | 0.523 | 8.8 | LOS A | 1.0 | 7.4 | 0.58 | 0.71 | 0.58 | 49.5 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 158 | 5.3 | 158 | 5.3 | 0.373 | 3.0 | LOS A | 0.9 | 6.8 | 0.34 | 0.52 | 0.34 | 50.7 |
| 11 | T1 | 209 | 4.5 | 209 | 4.5 | 0.373 | 3.5 | LOS A | 0.9 | 6.8 | 0.34 | 0.52 | 0.34 | 26.9 |
| 12 | R2 | 49 | 6.4 | 49 | 6.4 | 0.373 | 6.5 | LOS A | 0.9 | 6.8 | 0.34 | 0.52 | 0.34 | 51.8 |
| 12u | U | 21 | 0.0 | 21 | 0.0 | 0.373 | 8.3 | LOS A | 0.9 | 6.8 | 0.34 | 0.52 | 0.34 | 26.9 |
| Approach | | 438 | 4.8 | 438 | 4.8 | 0.373 | 3.9 | LOS A | 0.9 | 6.8 | 0.34 | 0.52 | 0.34 | 46.7 |
| All Vehicles | | 1304 | 3.6 | 1304 | 3.6 | 0.667 | 7.1 | LOS A | 1.4 | 10.0 | 0.55 | 0.70 | 0.61 | 45.5 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [AM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|------------------|---------|------------------|---------|-----------|-------------|------------------|-----------------------|-----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 381 | 2.5 | 381 | 2.5 | 0.982 | 39.5 | LOS C | 7.5 | 53.3 | 0.42 | 1.14 | 1.53 | 26.2 |
| Approach | | 381 | 2.5 | 381 | 2.5 | 0.982 | 39.5 | LOS C | 7.5 | 53.3 | 0.42 | 1.14 | 1.53 | 26.2 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 248 | 4.2 | 248 | 4.2 | 0.324 | 2.5 | LOS A | 0.6 | 4.6 | 0.33 | 0.49 | 0.33 | 52.9 |
| Approach | | 248 | 4.2 | 248 | 4.2 | 0.324 | 2.5 | LOS A | 0.6 | 4.6 | 0.33 | 0.49 | 0.33 | 52.9 |
| All Vehicles | | 629 | 3.2 | 629 | 3.2 | 0.982 | 24.9 | NA | 7.5 | 53.3 | 0.38 | 0.88 | 1.06 | 32.8 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [AM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 601 | 3.0 | 601 | 3.0 | 0.727 | 4.8 | LOS A | 4.3 | 30.8 | 0.51 | 0.53 | 0.56 | 21.7 |
| Approach | | 601 | 3.0 | 601 | 3.0 | 0.727 | 4.8 | LOS A | 4.3 | 30.8 | 0.51 | 0.53 | 0.56 | 21.7 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 438 | 4.8 | 438 | 4.8 | 0.535 | 5.0 | LOS A | 1.5 | 10.8 | 0.33 | 0.52 | 0.33 | 32.0 |
| Approach | | 438 | 4.8 | 438 | 4.8 | 0.535 | 5.0 | LOS A | 1.5 | 10.8 | 0.33 | 0.52 | 0.33 | 32.0 |
| All Vehicles | | 1039 | 3.7 | 1039 | 3.7 | 0.727 | 4.9 | NA | 4.3 | 30.8 | 0.44 | 0.53 | 0.47 | 27.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE SUMMARY

Site: 101 [AM - EX - Blair Street / Glenayr Avenue (Site Folder: General)]

Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|---------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 595 | 3.0 | 595 | 3.0 | 1895 | 0.314 | 100 | 0.2 | LOS A | 0.0 | 0.3 | Full | 90 | 0.0 | 0.0 |
| Approach | 595 | 3.0 | 595 | 3.0 | | 0.314 | | 0.2 | NA | 0.0 | 0.3 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | | |
| Lane 1 | 118 | 0.9 | 118 | 0.9 | 333 | 0.354 | 100 | 19.3 | LOS B | 0.5 | 3.8 | Full | 500 | 0.0 | 0.0 |
| Approach | 118 | 0.9 | 118 | 0.9 | | 0.354 | | 19.3 | LOS B | 0.5 | 3.8 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 516 | 4.7 | 516 | 4.7 | 1875 | 0.275 | 100 | 1.1 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 516 | 4.7 | 516 | 4.7 | | 0.275 | | 1.1 | NA | 0.0 | 0.0 | | | | |
| Intersection | 1228 | 3.5 | 1228 | 3.5 | | 0.354 | | 2.4 | NA | 0.5 | 3.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| East: Blair Street (E) | | | | | | | | | | |
| Mov. From E To Exit: | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | W | N | | | | | | | | |
| Lane 1 | 588 | 6 | 595 | 3.0 | 1895 | 0.314 | 100 | NA | NA | |
| Approach | 588 | 6 | 595 | 3.0 | | 0.314 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | |
| Mov. From N To Exit: | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | E | W | | | | | | | | |
| Lane 1 | 23 | 95 | 118 | 0.9 | 333 | 0.354 | 100 | NA | NA | |
| Approach | 23 | 95 | 118 | 0.9 | | 0.354 | | | | |
| West: Blair Street (W) | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | N | E | | | | | | | | |
| Lane 1 | 93 | 423 | 516 | 4.7 | 1875 | 0.275 | 100 | NA | NA | |

| | | | | | |
|--------------------------|------|-----|-------|-----|-------|
| Approach | 93 | 423 | 516 | 4.7 | 0.275 |
| Total %HV Deg.Satn (v/c) | | | | | |
| Intersection | 1228 | 3.5 | 0.354 | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|--|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Glenayr Avenue (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 Site: 101 [AM - EX - Blair Street / Mitchell Street (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|----------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|--------------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Mitchell Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 93 | 4.5 | 93 | 4.5 | 559 | 0.166 | 100 | 8.8 | LOS A | 0.3 | 2.1 | Full | 500 | -24.3 ^{N3} | 0.0 |
| Approach | 93 | 4.5 | 93 | 4.5 | | 0.166 | | 8.8 | LOS A | 0.3 | 2.1 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 381 | 2.5 | 381 | 2.5 | 571 | 0.667 | 100 | 8.6 | LOS A | 1.4 ^{N4} | 10.0 ^{N4} | Full | 10 | -34.5 ^{N3} | 49.9 |
| Approach | 381 | 2.5 | 381 | 2.5 | | 0.667 | | 8.6 | LOS A | 1.4 | 10.0 | | | | |
| North: Mitchell Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 393 | 2.9 | 393 | 2.9 | 751 | 0.523 | 100 | 8.8 | LOS A | 1.0 | 7.4 | Full | 500 | -25.3 ^{N3} | 0.0 |
| Approach | 393 | 2.9 | 393 | 2.9 | | 0.523 | | 8.8 | LOS A | 1.0 | 7.4 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 438 | 4.8 | 438 | 4.8 | 1175 | 0.373 | 100 | 3.9 | LOS A | 0.9 | 6.8 | Full | 35 | -7.1 ^{N3} | 0.0 |
| Approach | 438 | 4.8 | 438 | 4.8 | | 0.373 | | 3.9 | LOS A | 0.9 | 6.8 | | | | |
| Intersection | 1304 | 3.6 | 1304 | 3.6 | | 0.667 | | 7.1 | LOS A | 1.4 | 10.0 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

| Approach Lane Flows (veh/h) | | | | | | | | | | | | | |
|-----------------------------|----|-----|----|---|-------|-----|--|------------|---------------|--------------|----------------|--------------|--|
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Mov. From S To Exit: | L2 | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 47 | 38 | 4 | 3 | 93 | 4.5 | | 559 | 0.166 | 100 | NA | NA | |
| Approach | 47 | 38 | 4 | 3 | 93 | 4.5 | | | 0.166 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | |
| Mov. From E To Exit: | L2 | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 8 | 323 | 44 | 5 | 381 | 2.5 | | 571 | 0.667 | 100 | NA | NA | |
| Approach | 8 | 323 | 44 | 5 | 381 | 2.5 | | | 0.667 | | | | |

| North: Mitchell Street (N) | | | | | | | | | | | |
|----------------------------|------|-----|-----|-------|-------|-----|---------------|---------------------|--------------------|----------------------|--------------------|
| Mov. From N To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 29 | 145 | 209 | 8 | 393 | 2.9 | 751 | 0.523 | 100 | NA | NA |
| Approach | 29 | 145 | 209 | 8 | 393 | 2.9 | | 0.523 | | | |
| West: Blair Street (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 158 | 209 | 49 | 21 | 438 | 4.8 | 1175 | 0.373 | 100 | NA | NA |
| Approach | 158 | 209 | 49 | 21 | 438 | 4.8 | | 0.373 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 1304 | 3.6 | | 0.667 | | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|---|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|--|---------------------|----------------------|-----------------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Mitchell Street (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 Site: 101 [AM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 381 | 2.5 | 381 | 2.5 | 388 | 0.982 | 100 | 39.5 | LOS C | 7.5 | 53.3 | Full | 500 | -49.9 ^{N3} | 0.0 |
| Approach | 381 | 2.5 | 381 | 2.5 | | 0.982 | | 39.5 | LOS C | 7.5 | 53.3 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 248 | 4.2 | 248 | 4.2 | 768 | 0.324 | 100 | 2.5 | LOS A | 0.6 | 4.6 | Full | 10 | 0.0 | 8.8 |
| Approach | 248 | 4.2 | 248 | 4.2 | | 0.324 | | 2.5 | LOS A | 0.6 | 4.6 | | | | |
| Intersection | 629 | 3.2 | 629 | 3.2 | | 0.982 | | 24.9 | NA | 7.5 | 53.3 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|-----|---------------------|-----|-------|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 381 | 381 | 2.5 | | 388 | 0.982 | 100 | NA | NA |
| Approach | 381 | 381 | 2.5 | | | 0.982 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 248 | 248 | 4.2 | | 768 | 0.324 | 100 | NA | NA |
| Approach | 248 | 248 | 4.2 | | | 0.324 | | | |
| Total | | %HV Deg. Satn (v/c) | | | | | | | |
| Intersection | 629 | 3.2 | | 0.982 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|------------------|---------------------|------------------------|--------------------------|-----------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate veh/h | Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |

| | | |
|---|---|-----------------------------|
| East Exit: Blair Street (E) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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LANE SUMMARY

 Site: 101 [AM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 601 | 3.0 | 601 | 3.0 | 827 | 0.727 | 100 | 4.8 | LOS A | 4.3 | 30.8 | Full | 35 | 0.0 | 38.3 |
| Approach | 601 | 3.0 | 601 | 3.0 | | 0.727 | | 4.8 | LOS A | 4.3 | 30.8 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 438 | 4.8 | 438 | 4.8 | 819 | 0.535 | 100 | 5.0 | LOS A | 1.5 | 10.8 | Full | 90 | 0.0 | 0.0 |
| Approach | 438 | 4.8 | 438 | 4.8 | | 0.535 | | 5.0 | LOS A | 1.5 | 10.8 | | | | |
| Intersection | 1039 | 3.7 | 1039 | 3.7 | | 0.727 | | 4.9 | NA | 4.3 | 30.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|------|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 601 | 601 | 3.0 | | 827 | 0.727 | 100 | NA | NA |
| Approach | 601 | 601 | 3.0 | | | 0.727 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 438 | 438 | 4.8 | | 819 | 0.535 | 100 | NA | NA |
| Approach | 438 | 438 | 4.8 | | | 0.535 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 1039 | 3.7 | | | | 0.727 | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|-----------------------------|------------------|---------------------|------------------------|--------------------------|------------------|-----------------------|-------------------------------|---------------|----------------|-----------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate veh/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| East Exit: Blair Street (E) | | | | | | | | | | | |

| | | |
|--------------------------------|---|-----------------------------|
| Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) | | |
| Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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MOVEMENT SUMMARY

 **Site: 101 [PM - EX - Blair Street / Glenayr Avenue (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 485 | 4.1 | 485 | 4.1 | 0.267 | 0.2 | LOS A | 0.1 | 0.5 | 0.04 | 0.01 | 0.04 | 59.4 |
| 6 | R2 | 11 | 0.0 | 11 | 0.0 | 0.267 | 9.3 | LOS A | 0.1 | 0.5 | 0.04 | 0.01 | 0.04 | 55.8 |
| Approach | | 496 | 4.0 | 496 | 4.0 | 0.267 | 0.3 | NA | 0.1 | 0.5 | 0.04 | 0.01 | 0.04 | 59.3 |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | |
| 7 | L2 | 13 | 0.0 | 13 | 0.0 | 0.278 | 11.5 | LOS A | 0.4 | 2.8 | 0.76 | 1.03 | 0.88 | 38.7 |
| 9 | R2 | 79 | 2.7 | 79 | 2.7 | 0.278 | 19.5 | LOS B | 0.4 | 2.8 | 0.76 | 1.03 | 0.88 | 45.4 |
| Approach | | 92 | 2.3 | 92 | 2.3 | 0.278 | 18.4 | LOS B | 0.4 | 2.8 | 0.76 | 1.03 | 0.88 | 44.8 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 136 | 1.6 | 136 | 1.6 | 0.324 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 57.0 |
| 11 | T1 | 478 | 3.3 | 478 | 3.3 | 0.324 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 57.5 |
| Approach | | 614 | 2.9 | 614 | 2.9 | 0.324 | 1.3 | NA | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 57.3 |
| All Vehicles | | 1201 | 3.3 | 1201 | 3.3 | 0.324 | 2.2 | NA | 0.4 | 2.8 | 0.08 | 0.15 | 0.09 | 56.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [PM - EX - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 41 | 5.1 | 41 | 5.1 | 0.113 | 7.6 | LOS A | 0.2 | 1.7 | 0.62 | 0.69 | 0.62 | 47.6 |
| 2 | T1 | 36 | 0.0 | 36 | 0.0 | 0.113 | 7.6 | LOS A | 0.2 | 1.7 | 0.62 | 0.69 | 0.62 | 52.7 |
| 3 | R2 | 11 | 0.0 | 11 | 0.0 | 0.113 | 11.1 | LOS A | 0.2 | 1.7 | 0.62 | 0.69 | 0.62 | 47.6 |
| 3u | U | 1 | 0.0 | 1 | 0.0 | 0.113 | 12.9 | LOS A | 0.2 | 1.7 | 0.62 | 0.69 | 0.62 | 53.0 |
| Approach | | 88 | 2.4 | 88 | 2.4 | 0.113 | 8.1 | LOS A | 0.2 | 1.7 | 0.62 | 0.69 | 0.62 | 50.4 |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 4 | L2 | 9 | 0.0 | 9 | 0.0 | 0.370 | 3.7 | LOS A | 0.9 | 6.6 | 0.61 | 0.66 | 0.61 | 50.2 |
| 5 | T1 | 283 | 2.2 | 283 | 2.2 | 0.370 | 4.3 | LOS A | 0.9 | 6.6 | 0.61 | 0.66 | 0.61 | 18.8 |
| 6 | R2 | 43 | 2.4 | 43 | 2.4 | 0.370 | 7.1 | LOS A | 0.9 | 6.6 | 0.61 | 0.66 | 0.61 | 51.2 |
| 6u | U | 1 | 0.0 | 1 | 0.0 | 0.370 | 8.8 | LOS A | 0.9 | 6.6 | 0.61 | 0.66 | 0.61 | 18.8 |
| Approach | | 337 | 2.2 | 337 | 2.2 | 0.370 | 4.7 | LOS A | 0.9 | 6.6 | 0.61 | 0.66 | 0.61 | 35.1 |
| North: Mitchell Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 25 | 4.2 | 25 | 4.2 | 0.332 | 6.9 | LOS A | 0.8 | 5.7 | 0.59 | 0.72 | 0.59 | 46.5 |
| 8 | T1 | 106 | 3.0 | 106 | 3.0 | 0.332 | 7.1 | LOS A | 0.8 | 5.7 | 0.59 | 0.72 | 0.59 | 51.9 |
| 9 | R2 | 158 | 7.3 | 158 | 7.3 | 0.332 | 10.7 | LOS A | 0.8 | 5.7 | 0.59 | 0.72 | 0.59 | 46.5 |
| 9u | U | 4 | 50.0 | 4 | 50.0 | 0.332 | 13.9 | LOS A | 0.8 | 5.7 | 0.59 | 0.72 | 0.59 | 50.3 |
| Approach | | 294 | 6.1 | 294 | 6.1 | 0.332 | 9.1 | LOS A | 0.8 | 5.7 | 0.59 | 0.72 | 0.59 | 49.2 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 156 | 6.1 | 156 | 6.1 | 0.437 | 3.0 | LOS A | 1.1 | 7.7 | 0.34 | 0.51 | 0.34 | 50.7 |
| 11 | T1 | 277 | 2.3 | 277 | 2.3 | 0.437 | 3.4 | LOS A | 1.1 | 7.7 | 0.34 | 0.51 | 0.34 | 27.1 |
| 12 | R2 | 36 | 0.0 | 36 | 0.0 | 0.437 | 6.5 | LOS A | 1.1 | 7.7 | 0.34 | 0.51 | 0.34 | 52.4 |
| 12u | U | 27 | 0.0 | 27 | 0.0 | 0.437 | 8.2 | LOS A | 1.1 | 7.7 | 0.34 | 0.51 | 0.34 | 27.1 |
| Approach | | 496 | 3.2 | 496 | 3.2 | 0.437 | 3.8 | LOS A | 1.1 | 7.7 | 0.34 | 0.51 | 0.34 | 45.4 |
| All Vehicles | | 1215 | 3.6 | 1215 | 3.6 | 0.437 | 5.6 | LOS A | 1.1 | 7.7 | 0.49 | 0.61 | 0.49 | 46.6 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [PM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 337 | 2.2 | 337 | 2.2 | 0.566 | 6.9 | LOS A | 1.4 | 9.9 | 0.41 | 0.63 | 0.48 | 49.0 |
| Approach | | 337 | 2.2 | 337 | 2.2 | 0.566 | 6.9 | LOS A | 1.4 | 9.9 | 0.41 | 0.63 | 0.48 | 49.0 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 314 | 2.3 | 314 | 2.3 | 0.411 | 2.8 | LOS A | 0.9 | 6.3 | 0.39 | 0.52 | 0.39 | 52.6 |
| Approach | | 314 | 2.3 | 314 | 2.3 | 0.411 | 2.8 | LOS A | 0.9 | 6.3 | 0.39 | 0.52 | 0.39 | 52.6 |
| All Vehicles | | 651 | 2.3 | 651 | 2.3 | 0.566 | 4.9 | NA | 1.4 | 9.9 | 0.40 | 0.57 | 0.44 | 50.7 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [PM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 509 | 3.9 | 509 | 3.9 | 0.613 | 3.1 | LOS A | 2.0 | 14.5 | 0.36 | 0.49 | 0.36 | 28.0 |
| Approach | | 509 | 3.9 | 509 | 3.9 | 0.613 | 3.1 | LOS A | 2.0 | 14.5 | 0.36 | 0.49 | 0.36 | 28.0 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 496 | 3.2 | 496 | 3.2 | 0.594 | 5.0 | LOS A | 1.9 | 13.5 | 0.35 | 0.52 | 0.35 | 31.8 |
| Approach | | 496 | 3.2 | 496 | 3.2 | 0.594 | 5.0 | LOS A | 1.9 | 13.5 | 0.35 | 0.52 | 0.35 | 31.8 |
| All Vehicles | | 1005 | 3.6 | 1005 | 3.6 | 0.613 | 4.0 | NA | 2.0 | 14.5 | 0.36 | 0.50 | 0.36 | 30.5 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE SUMMARY

Site: 101 [PM - EX - Blair Street / Glenayr Avenue (Site Folder: General)]

Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|---------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 496 | 4.0 | 496 | 4.0 | 1856 | 0.267 | 100 | 0.3 | LOS A | 0.1 | 0.5 | Full | 90 | 0.0 | 0.0 |
| Approach | 496 | 4.0 | 496 | 4.0 | | 0.267 | | 0.3 | NA | 0.1 | 0.5 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | | |
| Lane 1 | 92 | 2.3 | 92 | 2.3 | 330 | 0.278 | 100 | 18.4 | LOS B | 0.4 | 2.8 | Full | 500 | 0.0 | 0.0 |
| Approach | 92 | 2.3 | 92 | 2.3 | | 0.278 | | 18.4 | LOS B | 0.4 | 2.8 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 614 | 2.9 | 614 | 2.9 | 1893 | 0.324 | 100 | 1.3 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 614 | 2.9 | 614 | 2.9 | | 0.324 | | 1.3 | NA | 0.0 | 0.0 | | | | |
| Intersection | 1201 | 3.3 | 1201 | 3.3 | | 0.324 | | 2.2 | NA | 0.4 | 2.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| East: Blair Street (E) | | | | | | | | | | |
| Mov. From E To Exit: | T1 | R2 | Total | %HV | | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | W | N | | | Cap. veh/h | | | | | |
| Lane 1 | 485 | 11 | 496 | 4.0 | 1856 | 0.267 | 100 | NA | NA | |
| Approach | 485 | 11 | 496 | 4.0 | | 0.267 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | |
| Mov. From N To Exit: | L2 | R2 | Total | %HV | | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | E | W | | | Cap. veh/h | | | | | |
| Lane 1 | 13 | 79 | 92 | 2.3 | 330 | 0.278 | 100 | NA | NA | |
| Approach | 13 | 79 | 92 | 2.3 | | 0.278 | | | | |
| West: Blair Street (W) | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | Total | %HV | | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | N | E | | | Cap. veh/h | | | | | |
| Lane 1 | 136 | 478 | 614 | 2.9 | 1893 | 0.324 | 100 | NA | NA | |

| | | | | | |
|--------------------------|------|-----|-------|-----|-------|
| Approach | 136 | 478 | 614 | 2.9 | 0.324 |
| Total %HV Deg.Satn (v/c) | | | | | |
| Intersection | 1201 | 3.3 | 0.324 | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|--|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Glenayr Avenue (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 **Site: 101 [PM - EX - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|----------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-----------------------|----------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h | HV % | [Total veh/h | HV % | veh/h | v/c | % | sec | | [Veh | Dist] m | | m | % | % |
| South: Mitchell Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 88 | 2.4 | 88 | 2.4 | 780 | 0.113 | 100 | 8.1 | LOS A | 0.2 | 1.7 | Full | 500 | -5.7 ^{N3} | 0.0 |
| Approach | 88 | 2.4 | 88 | 2.4 | | 0.113 | | 8.1 | LOS A | 0.2 | 1.7 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 337 | 2.2 | 337 | 2.2 | 910 | 0.370 | 100 | 4.7 | LOS A | 0.9 | 6.6 | Full | 10 | -5.1 ^{N3} | 22.2 |
| Approach | 337 | 2.2 | 337 | 2.2 | | 0.370 | | 4.7 | LOS A | 0.9 | 6.6 | | | | |
| North: Mitchell Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 294 | 6.1 | 294 | 6.1 | 886 | 0.332 | 100 | 9.1 | LOS A | 0.8 | 5.7 | Full | 500 | -5.3 ^{N3} | 0.0 |
| Approach | 294 | 6.1 | 294 | 6.1 | | 0.332 | | 9.1 | LOS A | 0.8 | 5.7 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 496 | 3.2 | 496 | 3.2 | 1135 | 0.437 | 100 | 3.8 | LOS A | 1.1 | 7.7 | Full | 35 | -12.8 ^{N3} | 0.0 |
| Approach | 496 | 3.2 | 496 | 3.2 | | 0.437 | | 3.8 | LOS A | 1.1 | 7.7 | | | | |
| Intersection | 1215 | 3.6 | 1215 | 3.6 | | 0.437 | | 5.6 | LOS A | 1.1 | 7.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | | | | | |
|-----------------------------|----|-----|----|---|-------|-----|-------|----------|---------|-------|----------|--|--|
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Mov. | L2 | T1 | R2 | U | Total | %HV | | | | | | | |
| From S | | | | | | | Cap. | Deg. | Lane | Prob. | Ov. | | |
| To Exit: | W | N | E | S | | | veh/h | Satn v/c | Util. % | SL % | Lane No. | | |
| Lane 1 | 41 | 36 | 11 | 1 | 88 | 2.4 | 780 | 0.113 | 100 | NA | NA | | |
| Approach | 41 | 36 | 11 | 1 | 88 | 2.4 | | 0.113 | | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | |
| Mov. | L2 | T1 | R2 | U | Total | %HV | | | | | | | |
| From E | | | | | | | Cap. | Deg. | Lane | Prob. | Ov. | | |
| To Exit: | S | W | N | E | | | veh/h | Satn v/c | Util. % | SL % | Lane No. | | |
| Lane 1 | 9 | 283 | 43 | 1 | 337 | 2.2 | 910 | 0.370 | 100 | NA | NA | | |
| Approach | 9 | 283 | 43 | 1 | 337 | 2.2 | | 0.370 | | | | | |
| North: Mitchell Street (N) | | | | | | | | | | | | | |

| Mov. From N To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|------|-----|-----|----|-------|-------|---------------|---------------------|--------------------|----------------------|--------------------|
| Lane 1 | 25 | 106 | 158 | 4 | 294 | 6.1 | 886 | 0.332 | 100 | NA | NA |
| Approach | 25 | 106 | 158 | 4 | 294 | 6.1 | | 0.332 | | | |
| West: Blair Street (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 156 | 277 | 36 | 27 | 496 | 3.2 | 1135 | 0.437 | 100 | NA | NA |
| Approach | 156 | 277 | 36 | 27 | 496 | 3.2 | | 0.437 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 1215 | 3.6 | | | | 0.437 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|---|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|-------------------------------------|-------------------|---------------------|----------------------|-----------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Mitchell Street (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 Site: 101 [PM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist] m | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 337 | 2.2 | 337 | 2.2 | 595 | 0.566 | 100 | 6.9 | LOS A | 1.4 | 9.9 | Full | 500 | -22.2 ^{N3} | 0.0 |
| Approach | 337 | 2.2 | 337 | 2.2 | | 0.566 | | 6.9 | LOS A | 1.4 | 9.9 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 314 | 2.3 | 314 | 2.3 | 764 | 0.411 | 100 | 2.8 | LOS A | 0.9 | 6.3 | Full | 10 | 0.0 | 20.5 |
| Approach | 314 | 2.3 | 314 | 2.3 | | 0.411 | | 2.8 | LOS A | 0.9 | 6.3 | | | | |
| Intersection | 651 | 2.3 | 651 | 2.3 | | 0.566 | | 4.9 | NA | 1.4 | 9.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N3 Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|-----|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 337 | 337 | 2.2 | | 595 | 0.566 | 100 | NA | NA |
| Approach | 337 | 337 | 2.2 | | | 0.566 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 314 | 314 | 2.3 | | 764 | 0.411 | 100 | NA | NA |
| Approach | 314 | 314 | 2.3 | | | 0.411 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 651 | 2.3 | | | | 0.566 | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|------------------|---------------------|------------------------|-----------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Flow Rate veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |

| | | |
|---|---|-----------------------------|
| East Exit: Blair Street (E) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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LANE SUMMARY

 Site: 101 [PM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 509 | 3.9 | 509 | 3.9 | 831 | 0.613 | 100 | 3.1 | LOS A | 2.0 | 14.5 | Full | 35 | 0.0 | 6.0 |
| Approach | 509 | 3.9 | 509 | 3.9 | | 0.613 | | 3.1 | LOS A | 2.0 | 14.5 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 496 | 3.2 | 496 | 3.2 | 834 | 0.594 | 100 | 5.0 | LOS A | 1.9 | 13.5 | Full | 90 | 0.0 | 0.0 |
| Approach | 496 | 3.2 | 496 | 3.2 | | 0.594 | | 5.0 | LOS A | 1.9 | 13.5 | | | | |
| Intersection | 1005 | 3.6 | 1005 | 3.6 | | 0.613 | | 4.0 | NA | 2.0 | 14.5 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|------|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 509 | 509 | 3.9 | | 831 | 0.613 | 100 | NA | NA |
| Approach | 509 | 509 | 3.9 | | | 0.613 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 496 | 496 | 3.2 | | 834 | 0.594 | 100 | NA | NA |
| Approach | 496 | 496 | 3.2 | | | 0.594 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 1005 | 3.6 | | | | 0.613 | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|-----------------------------|------------------|---------------------|------------------------|--------------------------|------------------|-----------------------|-------------------------------|---------------|----------------|-----------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate veh/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| East Exit: Blair Street (E) | | | | | | | | | | | |

| | | |
|--------------------------------|---|-----------------------------|
| Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) | | |
| Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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MOVEMENT SUMMARY

Site: 101 [AM - EX - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] veh/h | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 43 | 0 | 45 | 0.0 | 0.038 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 1.00 | 0.00 | 51.8 |
| 3 | R2 | 154 | 10 | 162 | 6.5 | 0.363 | 16.5 | LOS B | 1.8 | 13.3 | 0.65 | 1.06 | 0.84 | 46.9 |
| Approach | | 197 | 10 | 207 | 5.1 | 0.363 | 14.7 | LOS B | 1.8 | 13.3 | 0.51 | 1.05 | 0.65 | 47.9 |
| East: Murrverie Road (E) | | | | | | | | | | | | | | |
| 4 | L2 | 279 | 9 | 294 | 3.2 | 0.162 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.58 | 0.00 | 53.4 |
| 5 | T1 | 157 | 5 | 165 | 3.2 | 0.087 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 436 | 14 | 459 | 3.2 | 0.162 | 3.6 | NA | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 55.6 |
| West: Murrverie Road (W) | | | | | | | | | | | | | | |
| 11 | T1 | 142 | 2 | 149 | 1.4 | 0.076 | 0.1 | LOS A | 0.3 | 2.2 | 0.01 | 0.01 | 0.01 | 59.8 |
| 12 | R2 | 64 | 1 | 67 | 1.6 | 0.076 | 7.8 | LOS A | 0.3 | 2.2 | 0.48 | 0.66 | 0.48 | 52.0 |
| Approach | | 206 | 3 | 217 | 1.5 | 0.076 | 2.5 | NA | 0.3 | 2.2 | 0.16 | 0.21 | 0.16 | 57.2 |
| All Vehicles | | 839 | 27 | 883 | 3.2 | 0.363 | 5.9 | NA | 1.8 | 13.3 | 0.16 | 0.49 | 0.19 | 53.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [PM - EX - Murrivier Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murrivier Road and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|-----------------|--------------|-----------------|----------|-----------|-------------|------------------|-------------------|------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h] | [HV] veh/h | [Total veh/h] | [HV] % | v/c | sec | | [Veh. veh] | [Dist] m | | | | km/h |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 43 | 0 | 45 | 0.0 | 0.038 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 1.00 | 0.00 | 51.8 |
| 3 | R2 | 153 | 9 | 161 | 5.9 | 0.305 | 13.9 | LOS A | 1.4 | 10.5 | 0.59 | 1.03 | 0.67 | 48.5 |
| Approach | | 196 | 9 | 206 | 4.6 | 0.305 | 12.6 | LOS A | 1.4 | 10.5 | 0.46 | 1.02 | 0.53 | 49.2 |
| East: Murrivier Road (E) | | | | | | | | | | | | | | |
| 4 | L2 | 187 | 9 | 197 | 4.8 | 0.110 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 53.4 |
| 5 | T1 | 111 | 5 | 117 | 4.5 | 0.062 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 298 | 14 | 314 | 4.7 | 0.110 | 3.5 | NA | 0.0 | 0.0 | 0.00 | 0.36 | 0.00 | 55.7 |
| West: Murrivier Road (W) | | | | | | | | | | | | | | |
| 11 | T1 | 141 | 4 | 148 | 2.8 | 0.068 | 0.2 | LOS A | 0.3 | 2.3 | 0.05 | 0.06 | 0.05 | 59.3 |
| 12 | R2 | 55 | 6 | 58 | 10.9 | 0.068 | 7.2 | LOS A | 0.3 | 2.3 | 0.40 | 0.47 | 0.40 | 53.0 |
| Approach | | 196 | 10 | 206 | 5.1 | 0.068 | 2.2 | NA | 0.3 | 2.3 | 0.15 | 0.17 | 0.15 | 57.4 |
| All Vehicles | | 690 | 33 | 726 | 4.8 | 0.305 | 5.7 | NA | 1.4 | 10.5 | 0.17 | 0.50 | 0.19 | 54.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE SUMMARY

Site: 101 [AM - EX - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | |
|----------------------------|---|-----|---------------|------------------|-----------------|--------------------|------------------|--|------|-------------|------------------|----------------|-------------------|
| | DEMAND FLOWS [Total HV] veh/h % | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [Veh Dist] m | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Lane 1 | 45 | 0.0 | 1200 | 0.038 | 100 | 8.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 162 | 6.5 | 446 | 0.363 | 100 | 16.5 | LOS B | 1.8 | 13.3 | Full | 500 | 0.0 | 0.0 |
| Approach | 207 | 5.1 | | 0.363 | | 14.7 | LOS B | 1.8 | 13.3 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | | | | |
| Lane 1 | 294 | 3.2 | 1815 | 0.162 | 100 | 5.6 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 165 | 3.2 | 1910 | 0.087 | 53 ⁵ | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 459 | 3.2 | | 0.162 | | 3.6 | NA | 0.0 | 0.0 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | | | | |
| Lane 1 | 147 | 1.4 | 1932 | 0.076 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 70 | 1.6 | 924 | 0.076 | 100 | 7.6 | LOS A | 0.3 | 2.2 | Full | 500 | 0.0 | 0.0 |
| Approach | 217 | 1.5 | | 0.076 | | 2.5 | NA | 0.3 | 2.2 | | | | |
| Intersection | 883 | 3.2 | | 0.363 | | 5.9 | NA | 1.8 | 13.3 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|-------|-------|-----------------|-------|------|--|
| South: Mitchell Street (S) | | | | | | | | | | |
| Mov. | L2 | R2 | Total | %HV | | | | | | |
| From S | | | | | Cap. | Deg. | Lane | Prob. | Ov. | |
| To Exit: | W | E | | | veh/h | Satn | Util. | SL | Lane | |
| | | | | | | v/c | % | % | No. | |
| Lane 1 | 45 | - | 45 | 0.0 | 1200 | 0.038 | 100 | NA | NA | |
| Lane 2 | - | 162 | 162 | 6.5 | 446 | 0.363 | 100 | NA | NA | |
| Approach | 45 | 162 | 207 | 5.1 | | 0.363 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | | | | | |
| From E | | | | | Cap. | Deg. | Lane | Prob. | Ov. | |
| To Exit: | S | W | | | veh/h | Satn | Util. | SL | Lane | |
| | | | | | | v/c | % | % | No. | |
| Lane 1 | 294 | - | 294 | 3.2 | 1815 | 0.162 | 100 | NA | NA | |
| Lane 2 | - | 165 | 165 | 3.2 | 1910 | 0.087 | 53 ⁵ | NA | NA | |
| Approach | 294 | 165 | 459 | 3.2 | | 0.162 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | |

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|---------|---------|-------|-------|---------------|---------------------|--------------------|----------------------|--------------------|
| Lane 1 | 147 | - | 147 | 1.4 | 1932 | 0.076 | 100 | NA | NA |
| Lane 2 | 3 | 67 | 70 | 1.6 | 924 | 0.076 | 100 | NA | NA |
| Approach | 149 | 67 | 217 | 1.5 | | 0.076 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 883 | 3.2 | | 0.363 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

| Merge Analysis | | | | | | | | | | | |
|---|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|----------------------------|-------------------|---------------------|----------------------|-----------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Murriverie Road (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Murriverie Road (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |

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**ANNEXURE D: SIDRA OUTPUT REPORTS – EXISTING +
DEVELOPMENT
(46 SHEETS)**

LANE SUMMARY

 Site: 101 [PM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 517 | 3.9 | 517 | 3.9 | 797 | 0.649 | 100 | 4.9 | LOS A | 3.1 | 22.3 | Full | 35 | 0.0 | 20.9 |
| Approach | 517 | 3.9 | 517 | 3.9 | | 0.649 | | 4.9 | LOS A | 3.1 | 22.3 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 525 | 3.0 | 525 | 3.0 | 573 | 0.915 | 100 | 18.9 | LOS B | 8.1 | 58.4 | Full | 90 | -28.4 ^{N3} | 21.7 |
| Approach | 525 | 3.0 | 525 | 3.0 | | 0.915 | | 18.9 | LOS B | 8.1 | 58.4 | | | | |
| Intersection | 1042 | 3.4 | 1042 | 3.4 | | 0.915 | | 12.0 | NA | 8.1 | 58.4 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|------|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 517 | 517 | 3.9 | | 797 | 0.649 | 100 | NA | NA |
| Approach | 517 | 517 | 3.9 | | | 0.649 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 525 | 525 | 3.0 | | 573 | 0.915 | 100 | NA | NA |
| Approach | 525 | 525 | 3.0 | | | 0.915 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 1042 | 3.4 | | | | 0.915 | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|------------------|---------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|--|
| Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |

| | | |
|---|---|-----------------------------|
| East Exit: Blair Street (E) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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MOVEMENT SUMMARY

Site: 101 [AM - FU - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] veh/h | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 46 | 0 | 49 | 0.0 | 0.041 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 1.00 | 0.00 | 51.8 |
| 3 | R2 | 164 | 10 | 172 | 6.1 | 0.394 | 17.2 | LOS B | 2.0 | 14.9 | 0.67 | 1.08 | 0.89 | 46.6 |
| Approach | | 210 | 10 | 221 | 4.8 | 0.394 | 15.1 | LOS B | 2.0 | 14.9 | 0.52 | 1.06 | 0.70 | 47.6 |
| East: Murriverie Road (E) | | | | | | | | | | | | | | |
| 4 | L2 | 296 | 14 | 311 | 4.7 | 0.173 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 53.4 |
| 5 | T1 | 157 | 5 | 165 | 3.2 | 0.087 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 453 | 19 | 477 | 4.2 | 0.173 | 3.7 | NA | 0.0 | 0.0 | 0.00 | 0.38 | 0.00 | 55.5 |
| West: Murriverie Road (W) | | | | | | | | | | | | | | |
| 11 | T1 | 142 | 2 | 149 | 1.4 | 0.077 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| 12 | R2 | 68 | 1 | 71 | 1.5 | 0.083 | 8.0 | LOS A | 0.3 | 2.3 | 0.49 | 0.70 | 0.49 | 51.7 |
| Approach | | 210 | 3 | 221 | 1.4 | 0.083 | 2.6 | NA | 0.3 | 2.3 | 0.16 | 0.23 | 0.16 | 57.0 |
| All Vehicles | | 873 | 32 | 919 | 3.7 | 0.394 | 6.2 | NA | 2.0 | 14.9 | 0.16 | 0.50 | 0.21 | 53.7 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 101 [PM - FU - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|-----------------|--------------|-----------------|----------|-----------|-------------|------------------|-------------------|------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h] | [HV] veh/h | [Total veh/h] | [HV] % | v/c | sec | | [Veh. veh] | [Dist] m | | | | km/h |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 39 | 0 | 41 | 0.0 | 0.034 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 1.00 | 0.00 | 51.8 |
| 3 | R2 | 158 | 14 | 166 | 8.9 | 0.326 | 14.5 | LOS B | 1.6 | 11.9 | 0.61 | 1.04 | 0.71 | 48.1 |
| Approach | | 197 | 14 | 207 | 7.1 | 0.326 | 13.2 | LOS A | 1.6 | 11.9 | 0.49 | 1.04 | 0.57 | 48.8 |
| East: Murriverie Road (E) | | | | | | | | | | | | | | |
| 4 | L2 | 193 | 9 | 203 | 4.7 | 0.113 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 53.4 |
| 5 | T1 | 111 | 5 | 117 | 4.5 | 0.062 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 304 | 14 | 320 | 4.6 | 0.113 | 3.6 | NA | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 55.6 |
| West: Murriverie Road (W) | | | | | | | | | | | | | | |
| 11 | T1 | 141 | 4 | 148 | 2.8 | 0.069 | 0.2 | LOS A | 0.3 | 2.3 | 0.05 | 0.05 | 0.05 | 59.3 |
| 12 | R2 | 57 | 6 | 60 | 10.5 | 0.069 | 7.2 | LOS A | 0.3 | 2.3 | 0.41 | 0.49 | 0.41 | 52.9 |
| Approach | | 198 | 10 | 208 | 5.0 | 0.069 | 2.2 | NA | 0.3 | 2.3 | 0.15 | 0.18 | 0.15 | 57.3 |
| All Vehicles | | 699 | 38 | 736 | 5.4 | 0.326 | 5.9 | NA | 1.6 | 11.9 | 0.18 | 0.50 | 0.20 | 53.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE SUMMARY

Site: 101 [AM - FU - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | |
|----------------------------|---|-----|---------------|------------------|-----------------|--------------------|------------------|--|------|-------------|------------------|----------------|-------------------|
| | DEMAND FLOWS [Total HV] veh/h % | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [Veh Dist] m | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Lane 1 | 49 | 0.0 | 1200 | 0.041 | 100 | 8.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 172 | 6.1 | 438 | 0.394 | 100 | 17.2 | LOS B | 2.0 | 14.9 | Full | 500 | 0.0 | 0.0 |
| Approach | 221 | 4.8 | | 0.394 | | 15.1 | LOS B | 2.0 | 14.9 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | | | | |
| Lane 1 | 311 | 4.7 | 1797 | 0.173 | 100 | 5.6 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 165 | 3.2 | 1910 | 0.087 | 50 ⁵ | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 477 | 4.2 | | 0.173 | | 3.7 | NA | 0.0 | 0.0 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | | | | |
| Lane 1 | 149 | 1.4 | 1932 | 0.077 | 94 ⁵ | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 71 | 1.5 | 866 | 0.083 | 100 | 8.0 | LOS A | 0.3 | 2.3 | Full | 500 | 0.0 | 0.0 |
| Approach | 221 | 1.4 | | 0.083 | | 2.6 | NA | 0.3 | 2.3 | | | | |
| Intersection | 919 | 3.7 | | 0.394 | | 6.2 | NA | 2.0 | 14.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|------------|-----------|-----------------|----------|----------|--|
| South: Mitchell Street (S) | | | | | | | | | | |
| Mov. | L2 | R2 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From S To Exit: | W | E | | | Cap. veh/h | v/c | % | % | No. | |
| Lane 1 | 49 | - | 49 | 0.0 | 1200 | 0.041 | 100 | NA | NA | |
| Lane 2 | - | 172 | 172 | 6.1 | 438 | 0.394 | 100 | NA | NA | |
| Approach | 49 | 172 | 221 | 4.8 | | 0.394 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From E To Exit: | S | W | | | Cap. veh/h | v/c | % | % | No. | |
| Lane 1 | 311 | - | 311 | 4.7 | 1797 | 0.173 | 100 | NA | NA | |
| Lane 2 | - | 165 | 165 | 3.2 | 1910 | 0.087 | 50 ⁵ | NA | NA | |
| Approach | 311 | 165 | 477 | 4.2 | | 0.173 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | |

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|---------|---------|-------|-------|---------------|---------------------|-----------------|----------------------|--------------------|
| Lane 1 | 149 | - | 149 | 1.4 | 1932 | 0.077 | 94 ⁵ | NA | NA |
| Lane 2 | - | 71 | 71 | 1.5 | 866 | 0.083 | 100 | NA | NA |
| Approach | 149 | 71 | 221 | 1.4 | | 0.083 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 919 | 3.7 | | 0.394 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

⁵ Lane under-utilisation found by the program

| Merge Analysis | | | | | | | | | | | |
|---|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Murriverie Road (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Murriverie Road (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

Site: 101 [PM - FU - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | |
|----------------------------|---|-----|---------------|------------------|-----------------|--------------------|------------------|--|------|-------------|------------------|----------------|-------------------|
| | DEMAND FLOWS [Total HV] veh/h % | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Aver. Delay sec | Level of Service | 95% BACK OF QUEUE [Veh Dist] m | | Lane Config | Lane Length m | Cap. Adj. % | Prob. Block. % |
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Lane 1 | 41 | 0.0 | 1200 | 0.034 | 100 | 8.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 166 | 8.9 | 511 | 0.326 | 100 | 14.5 | LOS B | 1.6 | 11.9 | Full | 500 | 0.0 | 0.0 |
| Approach | 207 | 7.1 | | 0.326 | | 13.2 | LOS A | 1.6 | 11.9 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | | | | |
| Lane 1 | 203 | 4.7 | 1797 | 0.113 | 100 | 5.6 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 117 | 4.5 | 1895 | 0.062 | 55 ⁵ | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 320 | 4.6 | | 0.113 | | 3.6 | NA | 0.0 | 0.0 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | | | | |
| Lane 1 | 132 | 2.8 | 1915 | 0.069 | 100 | 0.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Lane 2 | 77 | 8.9 | 1114 | 0.069 | 100 | 6.0 | LOS A | 0.3 | 2.3 | Full | 500 | 0.0 | 0.0 |
| Approach | 208 | 5.0 | | 0.069 | | 2.2 | NA | 0.3 | 2.3 | | | | |
| Intersection | 736 | 5.4 | | 0.326 | | 5.9 | NA | 1.6 | 11.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

⁵ Lane under-utilisation found by the program

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|-------|-------|-----------------|-------|------|--|
| South: Mitchell Street (S) | | | | | | | | | | |
| Mov. | L2 | R2 | Total | %HV | | | | | | |
| From S | | | | | Cap. | Deg. | Lane | Prob. | Ov. | |
| To Exit: | W | E | | | veh/h | Satn | Util. | SL | Lane | |
| | | | | | | v/c | % | % | No. | |
| Lane 1 | 41 | - | 41 | 0.0 | 1200 | 0.034 | 100 | NA | NA | |
| Lane 2 | - | 166 | 166 | 8.9 | 511 | 0.326 | 100 | NA | NA | |
| Approach | 41 | 166 | 207 | 7.1 | | 0.326 | | | | |
| East: Murriverie Road (E) | | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | | | | | |
| From E | | | | | Cap. | Deg. | Lane | Prob. | Ov. | |
| To Exit: | S | W | | | veh/h | Satn | Util. | SL | Lane | |
| | | | | | | v/c | % | % | No. | |
| Lane 1 | 203 | - | 203 | 4.7 | 1797 | 0.113 | 100 | NA | NA | |
| Lane 2 | - | 117 | 117 | 4.5 | 1895 | 0.062 | 55 ⁵ | NA | NA | |
| Approach | 203 | 117 | 320 | 4.6 | | 0.113 | | | | |
| West: Murriverie Road (W) | | | | | | | | | | |

| Mov. From W To Exit: | T1 E | R2 S | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|---------|---------|-------|-------|---------------|---------------------|-----------------|----------------------|--------------------|
| Lane 1 | 132 | - | 132 | 2.8 | 1915 | 0.069 | 100 | NA | NA |
| Lane 2 | 17 | 60 | 77 | 8.9 | 1114 | 0.069 | 100 | NA | NA |
| Approach | 148 | 60 | 208 | 5.0 | | 0.069 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 736 | 5.4 | | 0.326 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

5 Lane under-utilisation found by the program

| Merge Analysis | | | | | | | | | | | |
|---|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|---------------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Murriverie Road (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Murriverie Road (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | |

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MOVEMENT SUMMARY

 **Site: 101 [AM - FU - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [AM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|--------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| | | | | | | v/c | sec | | | | | | | km/h |
| South: Old South Head Road (S) | | | | | | | | | | | | | | |
| 1b | L3 | 17 | 6.3 | 17 | 6.3 | 0.011 | 6.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 54.6 |
| 1 | L2 | 59 | 3.6 | 59 | 3.6 | 0.914 | 64.7 | LOS E | 16.6 | 122.0 | 1.00 | 1.08 | 1.31 | 30.3 |
| 2 | T1 | 597 | 6.0 | 597 | 6.0 | *0.914 | 59.9 | LOS E | 17.1 | 127.8 | 1.00 | 1.07 | 1.31 | 30.1 |
| 3 | R2 | 233 | 9.0 | 233 | 9.0 | 0.914 | 65.2 | LOS E | 17.1 | 127.8 | 1.00 | 1.05 | 1.30 | 20.0 |
| Approach | | 905 | 6.6 | 905 | 6.6 | 0.914 | 60.6 | LOS E | 17.1 | 127.8 | 0.98 | 1.05 | 1.28 | 28.3 |
| East: Curlewis Street | | | | | | | | | | | | | | |
| 4 | L2 | 479 | 2.0 | 479 | 2.0 | 0.436 | 18.2 | LOS B | 8.4 | 59.8 | 0.58 | 0.76 | 0.58 | 39.6 |
| 4a | L1 | 174 | 0.6 | 174 | 0.6 | 0.945 | 74.2 | LOS F | 14.4 | 102.6 | 1.00 | 1.16 | 1.47 | 21.1 |
| 5 | T1 | 174 | 3.0 | 174 | 3.0 | *0.945 | 69.9 | LOS E | 14.4 | 102.6 | 1.00 | 1.16 | 1.47 | 21.1 |
| 6 | R2 | 61 | 3.4 | 61 | 3.4 | 0.723 | 67.9 | LOS E | 2.2 | 15.9 | 1.00 | 0.83 | 1.23 | 21.5 |
| Approach | | 887 | 2.0 | 887 | 2.0 | 0.945 | 42.7 | LOS D | 14.4 | 102.6 | 0.77 | 0.92 | 0.98 | 28.2 |
| North: Old South Head Road (N) | | | | | | | | | | | | | | |
| 7 | L2 | 27 | 3.8 | 27 | 3.8 | 0.027 | 14.3 | LOS A | 0.3 | 2.5 | 0.45 | 0.64 | 0.45 | 41.3 |
| 8 | T1 | 665 | 2.4 | 665 | 2.4 | *0.951 | 67.7 | LOS E | 22.3 | 160.2 | 1.00 | 1.18 | 1.41 | 28.3 |
| 9a | R1 | 283 | 4.1 | 283 | 4.1 | 0.951 | 72.2 | LOS F | 22.3 | 160.2 | 1.00 | 1.14 | 1.41 | 27.7 |
| 9 | R2 | 77 | 1.4 | 77 | 1.4 | 0.951 | 73.5 | LOS F | 22.3 | 160.2 | 1.00 | 1.14 | 1.41 | 27.4 |
| Approach | | 1053 | 2.8 | 1053 | 2.8 | 0.951 | 67.9 | LOS E | 22.3 | 160.2 | 0.99 | 1.15 | 1.39 | 28.2 |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | |
| 10 | L2 | 82 | 5.1 | 82 | 5.1 | 0.336 | 44.9 | LOS D | 5.2 | 37.3 | 0.88 | 0.75 | 0.88 | 35.4 |
| 11 | T1 | 189 | 3.3 | 189 | 3.3 | 0.840 | 48.6 | LOS D | 5.2 | 37.3 | 0.93 | 0.83 | 1.08 | 22.9 |
| 12 | R2 | 49 | 6.4 | 49 | 6.4 | 0.840 | 67.2 | LOS E | 4.9 | 35.3 | 1.00 | 0.93 | 1.32 | 29.0 |
| 12b | R3 | 1 | 0.0 | 1 | 0.0 | 0.840 | 67.8 | LOS E | 4.9 | 35.3 | 1.00 | 0.93 | 1.32 | 29.0 |
| Approach | | 322 | 4.2 | 322 | 4.2 | 0.840 | 50.6 | LOS D | 5.2 | 37.3 | 0.93 | 0.83 | 1.07 | 27.7 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | |
| 30b | L3 | 13 | 0.0 | 13 | 0.0 | 0.518 | 57.7 | LOS E | 4.3 | 31.2 | 0.99 | 0.79 | 0.99 | 31.0 |
| 30a | L1 | 175 | 6.0 | 175 | 6.0 | *0.947 | 64.1 | LOS E | 7.2 | 52.3 | 0.99 | 0.89 | 1.19 | 29.1 |
| 32a | R1 | 119 | 2.7 | 119 | 2.7 | 0.947 | 80.2 | LOS F | 7.2 | 52.3 | 1.00 | 1.11 | 1.62 | 16.7 |
| Approach | | 306 | 4.5 | 306 | 4.5 | 0.947 | 70.1 | LOS E | 7.2 | 52.3 | 1.00 | 0.97 | 1.35 | 24.7 |
| All Vehicles | | 3474 | 3.9 | 3474 | 3.9 | 0.951 | 58.2 | LOS E | 22.3 | 160.2 | 0.93 | 1.02 | 1.22 | 27.8 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

| Pedestrian Movement Performance | | | | | | | | | | | |
|---------------------------------|----------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|-------------|--------------|-------------|
| Mov ID | Crossing | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
| | | ped/h | sec | | [Ped ped | Dist] m | | | sec | m | m/sec |
| South: Old South Head Road (S) | | | | | | | | | | | |
| P1 | Full | 55 | 49.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 215.6 | 216.2 | 1.00 |
| East: Curlewis Street | | | | | | | | | | | |
| P2 | Full | 28 | 49.2 | LOS E | 0.1 | 0.1 | 0.95 | 0.95 | 218.0 | 219.4 | 1.01 |
| North: Old South Head Road (N) | | | | | | | | | | | |
| P3 | Full | 34 | 49.2 | LOS E | 0.1 | 0.1 | 0.95 | 0.95 | 215.5 | 216.2 | 1.00 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| P8 | Full | 35 | 49.2 | LOS E | 0.1 | 0.1 | 0.95 | 0.95 | 213.0 | 212.9 | 1.00 |
| All Pedestrians | | 152 | 49.2 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 215.4 | 216.0 | 1.00 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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MOVEMENT SUMMARY

 **Site: 101 [AM - FU - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [AM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Wellington Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 60 | 1.8 | 60 | 1.8 | 0.311 | 12.1 | LOS A | 0.7 | 4.8 | 0.82 | 0.90 | 0.82 | 43.1 |
| 2 | T1 | 73 | 0.0 | 73 | 0.0 | 0.311 | 11.6 | LOS A | 0.7 | 4.8 | 0.82 | 0.90 | 0.82 | 49.2 |
| 3 | R2 | 13 | 16.7 | 13 | 16.7 | 0.311 | 15.4 | LOS B | 0.7 | 4.8 | 0.82 | 0.90 | 0.82 | 48.2 |
| Approach | | 145 | 2.2 | 145 | 2.2 | 0.311 | 12.1 | LOS A | 0.7 | 4.8 | 0.82 | 0.90 | 0.82 | 47.3 |
| East: Curlewis Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 182 | 1.7 | 182 | 1.7 | 0.409 | 10.0 | LOS A | 0.8 | 5.6 | 0.77 | 0.86 | 0.80 | 45.2 |
| 6 | R2 | 6 | 50.0 | 6 | 50.0 | 0.409 | 15.3 | LOS B | 0.8 | 5.6 | 0.77 | 0.86 | 0.80 | 48.1 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.409 | 14.0 | LOS A | 0.8 | 5.6 | 0.77 | 0.86 | 0.80 | 50.5 |
| Approach | | 194 | 3.3 | 194 | 3.3 | 0.409 | 10.2 | LOS A | 0.8 | 5.6 | 0.77 | 0.86 | 0.80 | 45.6 |
| North: Wellington Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 11 | 0.0 | 11 | 0.0 | 0.769 | 7.0 | LOS A | 2.2 | 15.7 | 0.58 | 0.65 | 0.58 | 50.4 |
| 9 | R2 | 618 | 1.9 | 618 | 1.9 | 0.769 | 9.4 | LOS A | 2.2 | 15.7 | 0.58 | 0.65 | 0.58 | 46.1 |
| 9u | U | 1 | 0.0 | 1 | 0.0 | 0.769 | 10.8 | LOS A | 2.2 | 15.7 | 0.58 | 0.65 | 0.58 | 51.0 |
| Approach | | 629 | 1.8 | 629 | 1.8 | 0.769 | 9.4 | LOS A | 2.2 | 15.7 | 0.58 | 0.65 | 0.58 | 46.2 |
| West: Curlewis Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 1 | 0.0 | 0.153 | 5.8 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 49.6 |
| 11 | T1 | 161 | 5.9 | 161 | 5.9 | 0.153 | 5.5 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 50.3 |
| 12u | U | 4 | 25.0 | 4 | 25.0 | 0.153 | 10.0 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 35.9 |
| Approach | | 166 | 6.3 | 166 | 6.3 | 0.153 | 5.6 | LOS A | 0.3 | 2.2 | 0.22 | 0.52 | 0.22 | 50.2 |
| All Vehicles | | 1135 | 2.8 | 1135 | 2.8 | 0.769 | 9.3 | LOS A | 2.2 | 15.7 | 0.59 | 0.70 | 0.60 | 46.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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LANE SUMMARY

 **Site: 101 [AM - FU - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [AM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 110 seconds (Network Optimum Cycle Time - Minimum Delay)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------------|-----------------|----------|-----------------|----------|------------------|-----------|-----------------|-------------|------------------|-----------------------|------------|-------------|-------------|--------------------|-------------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Old South Head Road (S) | | | | | | | | | | | | | | | |
| Lane 1 | 17 | 6.3 | 17 | 6.3 | 1562 | 0.011 | 100 | 6.9 | LOS A | 0.0 | 0.0 | Short | 6 | 0.0 | NA |
| Lane 2 | 440 | 5.7 | 440 | 5.7 | 481 ¹ | 0.914 | 100 | 60.8 | LOS E | 16.6 | 122.0 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 3 | 449 | 7.6 | 449 | 7.6 | 491 | 0.914 | 100 | 62.5 | LOS E | 17.1 | 127.8 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Approach | 905 | 6.6 | 905 | 6.6 | | 0.914 | | 60.6 | LOS E | 17.1 | 127.8 | | | | |
| East: Curlewis Street | | | | | | | | | | | | | | | |
| Lane 1 | 479 | 2.0 | 479 | 2.0 | 1099 | 0.436 | 100 | 18.2 | LOS B | 8.4 | 59.8 | Full | 130 | 0.0 | 28.0 ⁸ |
| Lane 2 | 347 | 1.8 | 347 | 1.8 | 368 ¹ | 0.945 | 100 | 72.0 | LOS F | 14.4 | 102.6 | Short | 92 | 0.0 | NA |
| Lane 3 | 61 | 3.4 | 61 | 3.4 | 84 | 0.723 | 76 ⁵ | 67.9 | LOS E | 2.2 | 15.9 | Short | 42 | 0.0 | NA |
| Approach | 887 | 2.0 | 887 | 2.0 | | 0.945 | | 42.7 | LOS D | 14.4 | 102.6 | | | | |
| North: Old South Head Road (N) | | | | | | | | | | | | | | | |
| Lane 1 | 27 | 3.8 | 27 | 3.8 | 1006 | 0.027 | 100 | 14.3 | LOS A | 0.3 | 2.5 | Short | 10 | 0.0 | NA |
| Lane 2 | 507 | 2.4 | 507 | 2.4 | 533 ¹ | 0.951 | 100 | 67.6 | LOS E | 21.5 | 153.6 | Full | 500 | 0.0 | 0.0 |
| Lane 3 | 519 | 3.2 | 519 | 3.2 | 545 | 0.951 | 100 | 71.1 | LOS F | 22.3 | 160.2 | Full | 500 | 0.0 | 0.0 |
| Approach | 1053 | 2.8 | 1053 | 2.8 | | 0.951 | | 67.9 | LOS E | 22.3 | 160.2 | | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | | |
| Lane 1 | 188 | 4.1 | 188 | 4.1 | 559 | 0.336 | 40 ⁷ | 41.1 | LOS C | 5.2 | 37.3 | Short (P) | 35 | 40.0 ^{N2} | NA |
| Lane 2 | 135 | 4.4 | 135 | 4.4 | 160 | 0.840 | 100 | 63.7 | LOS E | 4.9 | 35.3 | Full | 500 | 40.0 ^{N2} | 0.0 |
| Approach | 322 | 4.2 | 322 | 4.2 | | 0.840 | | 50.6 | LOS D | 5.2 | 37.3 | | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | | |
| Lane 1 | 133 | 5.5 | 133 | 5.5 | 257 | 0.518 | 55 ⁶ | 56.9 | LOS E | 4.3 | 31.2 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 2 | 173 | 3.7 | 173 | 3.7 | 183 | 0.947 | 100 | 80.3 | LOS F | 7.2 | 52.3 | Full | 500 | 0.0 | 0.0 |
| Approach | 306 | 4.5 | 306 | 4.5 | | 0.947 | | 70.1 | LOS E | 7.2 | 52.3 | | | | |
| Intersection | 3474 | 3.9 | 3474 | 3.9 | | 0.951 | | 58.2 | LOS E | 22.3 | 160.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
- ⁵ Lane under-utilisation found by the program
- ⁶ Lane under-utilisation due to downstream effects
- ⁷ Lane under-utilisation specified by the user
- ⁸ Probability of Blockage has been set on the basis of a queue that overflows from a short lane.

N2 Capacity Adjustment specified by user.

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|--------------------------------|----------|----------|----------|----------|-------|---------------|---------------------|---------------------|----------------------|----------------------|--------------------|
| South: Old South Head Road (S) | | | | | | | | | | | |
| Mov. From S To Exit: | L3 SW | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 17 | - | - | - | 17 | 6.3 | 1562 | 0.011 | 100 | 0.0 | 2 |
| Lane 2 | - | 59 | 381 | - | 440 | 5.7 | 481 ¹ | 0.914 | 100 | NA | NA |
| Lane 3 | - | - | 216 | 233 | 449 | 7.6 | 491 | 0.914 | 100 | NA | NA |
| Approach | 17 | 59 | 597 | 233 | 905 | 6.6 | | 0.914 | | | |
| East: Curlewis Street | | | | | | | | | | | |
| Mov. From E To Exit: | L2 S | L1 SW | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 479 | - | - | - | 479 | 2.0 | 1099 | 0.436 | 100 | NA | NA |
| Lane 2 | - | 174 | 174 | - | 347 | 1.8 | 368 ¹ | 0.945 | 100 | 60.3 | 1 |
| Lane 3 | - | - | - | 61 | 61 | 3.4 | 84 | 0.723 | 76 ⁵ | 0.0 | 2 |
| Approach | 479 | 174 | 174 | 61 | 887 | 2.0 | | 0.945 | | | |
| North: Old South Head Road (N) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R1 SW | R2 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 27 | - | - | - | 27 | 3.8 | 1006 | 0.027 | 100 | 0.0 | 2 |
| Lane 2 | - | 507 | - | - | 507 | 2.4 | 533 ¹ | 0.951 | 100 | NA | NA |
| Lane 3 | - | 159 | 283 | 77 | 519 | 3.2 | 545 | 0.951 | 100 | NA | NA |
| Approach | 27 | 665 | 283 | 77 | 1053 | 2.8 | | 0.951 | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | R3 SW | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 82 | 105 | - | - | 188 | 4.1 | 559 | 0.336 | 40 ⁷ | 56.1 | 2 |
| Lane 2 | - | 84 | 49 | 1 | 135 | 4.4 | 160 | 0.840 | 100 | NA | NA |
| Approach | 82 | 189 | 49 | 1 | 322 | 4.2 | | 0.840 | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| Mov. From SW To Exit: | L3 W | L1 N | R1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 13 | 121 | - | 133 | 5.5 | 257 | 0.518 | 55 ⁶ | NA | NA | |
| Lane 2 | - | 54 | 119 | 173 | 3.7 | 183 | 0.947 | 100 | NA | NA | |
| Approach | 13 | 175 | 119 | 306 | 4.5 | | 0.947 | | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 3474 | 3.9 | | 0.951 | | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
- ⁵ Lane under-utilisation found by the program
- ⁶ Lane under-utilisation due to downstream effects
- ⁷ Lane under-utilisation specified by the user

Merge Analysis

| Exit Lane Number | Short Lane Length | Percent Opng in Lane | Opposing Flow Rate | Critical Gap | Follow-up Headway | Lane Capacity Flow Rate | Deg. Satn | Min. Delay | Merge Delay |
|------------------------|-------------------------|----------------------------|-----------------------|-----------------|----------------------|----------------------------|--------------|---------------|----------------|
|------------------------|-------------------------|----------------------------|-----------------------|-----------------|----------------------|----------------------------|--------------|---------------|----------------|

| | | m | % veh/h | pcu/h | sec | sec | veh/h | veh/h | v/c | sec | sec | |
|-------------------------------------|---|-----------------------------|---------|---------------------------|-----|------|-------|-------|-------|-------|-----|-----|
| South Exit: Old South Head Road (S) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | |
| East Exit: Curlewis Street | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| North Exit: Old South Head Road (N) | | | | | | | | | | | | |
| Merge Type: Priority | | | | | | | | | | | | |
| Exit Short Lane | 1 | 100 | 0.0 | 331 | 341 | 3.00 | 2.00 | 583 | 1453 | 0.401 | 0.5 | 1.1 |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | 331 | 1800 | 0.184 | 0.0 | 0.0 | |
| West Exit: O'Sullivan Road (W) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |
| SouthWest Exit: Birriga Road (SW) | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | |

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LANE SUMMARY

 **Site: 101 [AM - FU - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [AM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|------------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist] m | | m | % | % |
| South: Wellington Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 145 | 2.2 | 145 | 2.2 | 468 | 0.311 | 100 | 12.1 | LOS A | 0.7 | 4.8 | Full | 500 | -13.8 ^{N3} | 0.0 |
| Approach | 145 | 2.2 | 145 | 2.2 | | 0.311 | | 12.1 | LOS A | 0.7 | 4.8 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 194 | 3.3 | 194 | 3.3 | 473 | 0.409 | 100 | 10.2 | LOS A | 0.8 | 5.6 | Full | 500 | -26.8 ^{N3} | 0.0 |
| Approach | 194 | 3.3 | 194 | 3.3 | | 0.409 | | 10.2 | LOS A | 0.8 | 5.6 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 629 | 1.8 | 629 | 1.8 | 819 | 0.769 | 100 | 9.4 | LOS A | 2.2 | 15.7 | Full | 500 | -27.6 ^{N3} | 0.0 |
| Approach | 629 | 1.8 | 629 | 1.8 | | 0.769 | | 9.4 | LOS A | 2.2 | 15.7 | | | | |
| West: Curlewis Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 166 | 6.3 | 166 | 6.3 | 1090 | 0.153 | 100 | 5.6 | LOS A | 0.3 | 2.2 | Full | 130 | -1.0 ^{N3} | 0.0 |
| Approach | 166 | 6.3 | 166 | 6.3 | | 0.153 | | 5.6 | LOS A | 0.3 | 2.2 | | | | |
| Intersection | 1135 | 2.8 | 1135 | 2.8 | | 0.769 | | 9.3 | LOS A | 2.2 | 15.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|------------------------------|-----|----|----|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| South: Wellington Street (S) | | | | | | | | | | | |
| Mov. | L2 | T1 | R2 | Total | %HV | | | | | | |
| From S | | | | | | | | | | | |
| To Exit: | W | N | E | | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 60 | 73 | 13 | 145 | 2.2 | 468 | 0.311 | 100 | NA | NA | |
| Approach | 60 | 73 | 13 | 145 | 2.2 | | 0.311 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | |
| Mov. | T1 | R2 | U | Total | %HV | | | | | | |
| From E | | | | | | | | | | | |
| To Exit: | W | N | E | | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 182 | 6 | 5 | 194 | 3.3 | 473 | 0.409 | 100 | NA | NA | |
| Approach | 182 | 6 | 5 | 194 | 3.3 | | 0.409 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | |

| Mov. From N To Exit: | L2 E | R2 W | U N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
|----------------------------|---------|---------|--------|-------|-----|---------------|---------------------|--------------------|----------------------|--------------------|
| Lane 1 | 11 | 618 | 1 | 629 | 1.8 | 819 | 0.769 | 100 | NA | NA |
| Approach | 11 | 618 | 1 | 629 | 1.8 | | 0.769 | | | |
| West: Curlewis Street (W) | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 1 | 161 | 4 | 166 | 6.3 | 1090 | 0.153 | 100 | NA | NA |
| Approach | 1 | 161 | 4 | 166 | 6.3 | | 0.153 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | |
| Intersection | 1135 | 2.8 | | 0.769 | | | | | | |


Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|---|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|-------------------------------|---------------|----------------|-----------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| East Exit: Curlewis Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wellington Street (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Curlewis Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [PM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|--------------------------------|------|-----------------|----------|-----------------|----------|-----------|-------------|------------------|-----------------------|------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | | | | [Veh. veh] | [Dist m] | | | | |
| | | | | | | | | | | | | | | |
| South: Old South Head Road (S) | | | | | | | | | | | | | | |
| 1b | L3 | 15 | 0.0 | 15 | 0.0 | 0.009 | 6.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.58 | 0.00 | 54.8 |
| 1 | L2 | 42 | 5.0 | 42 | 5.0 | 0.880 | 53.9 | LOS D | 15.6 | 112.5 | 1.00 | 1.02 | 1.22 | 33.3 |
| 2 | T1 | 638 | 3.0 | 638 | 3.0 | *0.880 | 49.1 | LOS D | 16.2 | 115.1 | 1.00 | 1.01 | 1.22 | 33.1 |
| 3 | R2 | 292 | 1.1 | 292 | 1.1 | 0.880 | 54.1 | LOS D | 16.2 | 115.1 | 1.00 | 0.99 | 1.22 | 22.5 |
| Approach | | 986 | 2.5 | 986 | 2.5 | 0.880 | 50.2 | LOS D | 16.2 | 115.1 | 0.99 | 1.00 | 1.20 | 30.8 |
| | | | | | | | | | | | | | | |
| East: Curlewis Street | | | | | | | | | | | | | | |
| 4 | L2 | 494 | 5.1 | 494 | 5.1 | 0.475 | 18.6 | LOS B | 8.5 | 61.9 | 0.62 | 0.77 | 0.62 | 39.2 |
| 4a | L1 | 89 | 1.2 | 89 | 1.2 | 0.839 | 56.7 | LOS E | 7.3 | 51.5 | 1.00 | 0.97 | 1.27 | 25.1 |
| 5 | T1 | 133 | 1.6 | 133 | 1.6 | 0.839 | 52.5 | LOS D | 7.3 | 51.5 | 1.00 | 0.97 | 1.27 | 25.2 |
| 6 | R2 | 58 | 1.8 | 58 | 1.8 | 0.734 | 63.4 | LOS E | 1.9 | 13.7 | 1.00 | 0.83 | 1.27 | 22.4 |
| Approach | | 774 | 3.8 | 774 | 3.8 | 0.839 | 32.2 | LOS C | 8.5 | 61.9 | 0.76 | 0.83 | 0.86 | 32.2 |
| | | | | | | | | | | | | | | |
| North: Old South Head Road (N) | | | | | | | | | | | | | | |
| 7 | L2 | 46 | 2.3 | 46 | 2.3 | 0.043 | 12.3 | LOS A | 0.5 | 3.5 | 0.43 | 0.64 | 0.43 | 43.1 |
| 8 | T1 | 786 | 3.9 | 786 | 3.9 | *0.891 | 48.2 | LOS D | 17.2 | 124.8 | 1.00 | 1.06 | 1.26 | 33.3 |
| 9a | R1 | 122 | 6.0 | 122 | 6.0 | 0.891 | 52.6 | LOS D | 17.2 | 124.8 | 1.00 | 1.06 | 1.26 | 32.9 |
| 9 | R2 | 61 | 3.4 | 61 | 3.4 | 0.891 | 54.0 | LOS D | 17.2 | 124.8 | 1.00 | 1.06 | 1.26 | 32.4 |
| Approach | | 1016 | 4.0 | 1016 | 4.0 | 0.891 | 47.5 | LOS D | 17.2 | 124.8 | 0.97 | 1.04 | 1.22 | 33.4 |
| | | | | | | | | | | | | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | |
| 10 | L2 | 74 | 2.9 | 74 | 2.9 | 0.349 | 46.6 | LOS D | 3.8 | 27.3 | 0.93 | 0.76 | 0.93 | 34.7 |
| 11 | T1 | 182 | 1.7 | 182 | 1.7 | 0.873 | 50.9 | LOS D | 5.3 | 38.0 | 0.97 | 0.89 | 1.22 | 22.3 |
| 12 | R2 | 45 | 4.7 | 45 | 4.7 | 0.873 | 63.3 | LOS E | 5.3 | 38.0 | 1.00 | 0.97 | 1.40 | 30.1 |
| 12b | R3 | 1 | 0.0 | 1 | 0.0 | *0.873 | 63.9 | LOS E | 5.3 | 38.0 | 1.00 | 0.97 | 1.40 | 30.0 |
| Approach | | 302 | 2.4 | 302 | 2.4 | 0.873 | 51.8 | LOS D | 5.3 | 38.0 | 0.97 | 0.87 | 1.17 | 27.2 |
| | | | | | | | | | | | | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | |
| 30b | L3 | 9 | 0.0 | 9 | 0.0 | 0.479 | 51.0 | LOS D | 4.2 | 30.7 | 0.97 | 0.79 | 0.97 | 32.9 |
| 30a | L1 | 208 | 5.1 | 208 | 5.1 | 0.876 | 54.0 | LOS D | 6.7 | 48.4 | 0.98 | 0.87 | 1.12 | 31.6 |
| 32a | R1 | 124 | 3.4 | 124 | 3.4 | *0.876 | 61.6 | LOS E | 6.7 | 48.4 | 1.00 | 1.02 | 1.40 | 20.1 |
| Approach | | 342 | 4.3 | 342 | 4.3 | 0.876 | 56.7 | LOS E | 6.7 | 48.4 | 0.99 | 0.92 | 1.21 | 28.1 |
| | | | | | | | | | | | | | | |
| All Vehicles | | 3420 | 3.4 | 3420 | 3.4 | 0.891 | 46.1 | LOS D | 17.2 | 124.8 | 0.93 | 0.96 | 1.13 | 31.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

| Pedestrian Movement Performance | | | | | | | | | | | |
|---------------------------------|----------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|-------------|--------------|-------------|
| Mov ID | Crossing | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
| | | ped/h | sec | | [Ped ped | Dist] m | | | sec | m | m/sec |
| South: Old South Head Road (S) | | | | | | | | | | | |
| P1 | Full | 19 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 222.5 | 214.0 | 0.96 |
| East: Curlewis Street | | | | | | | | | | | |
| P2 | Full | 14 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 213.0 | 219.4 | 1.03 |
| North: Old South Head Road (N) | | | | | | | | | | | |
| P3 | Full | 19 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 210.5 | 216.2 | 1.03 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| P8 | Full | 39 | 44.3 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 208.0 | 212.9 | 1.02 |
| All Pedestrians | | 91 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 212.3 | 214.8 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [PM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Wellington Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 49 | 0.0 | 49 | 0.0 | 0.297 | 11.2 | LOS A | 0.8 | 5.4 | 0.80 | 0.87 | 0.80 | 43.8 |
| 2 | T1 | 104 | 4.0 | 104 | 4.0 | 0.297 | 11.1 | LOS A | 0.8 | 5.4 | 0.80 | 0.87 | 0.80 | 49.5 |
| 3 | R2 | 21 | 0.0 | 21 | 0.0 | 0.297 | 13.6 | LOS A | 0.8 | 5.4 | 0.80 | 0.87 | 0.80 | 49.3 |
| Approach | | 175 | 2.4 | 175 | 2.4 | 0.297 | 11.4 | LOS A | 0.8 | 5.4 | 0.80 | 0.87 | 0.80 | 48.4 |
| East: Curlewis Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 172 | 9.2 | 172 | 9.2 | 0.278 | 9.3 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 46.0 |
| 6 | R2 | 9 | 0.0 | 9 | 0.0 | 0.278 | 11.5 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 50.6 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.278 | 13.0 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 51.0 |
| Approach | | 186 | 8.5 | 186 | 8.5 | 0.278 | 9.5 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 46.6 |
| North: Wellington Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 12 | 0.0 | 12 | 0.0 | 0.519 | 7.4 | LOS A | 1.9 | 13.7 | 0.62 | 0.67 | 0.62 | 50.2 |
| 9 | R2 | 534 | 3.0 | 534 | 3.0 | 0.519 | 9.8 | LOS A | 1.9 | 13.7 | 0.62 | 0.67 | 0.62 | 45.8 |
| 9u | U | 1 | 0.0 | 1 | 0.0 | 0.519 | 11.1 | LOS A | 1.9 | 13.7 | 0.62 | 0.67 | 0.62 | 50.8 |
| Approach | | 546 | 2.9 | 546 | 2.9 | 0.519 | 9.8 | LOS A | 1.9 | 13.7 | 0.62 | 0.67 | 0.62 | 45.9 |
| West: Curlewis Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 1 | 0.0 | 0.198 | 6.1 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 49.1 |
| 11 | T1 | 193 | 2.2 | 193 | 2.2 | 0.198 | 5.8 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 50.0 |
| 12u | U | 17 | 0.0 | 17 | 0.0 | 0.198 | 9.8 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 34.9 |
| Approach | | 211 | 2.0 | 211 | 2.0 | 0.198 | 6.1 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 49.6 |
| All Vehicles | | 1118 | 3.6 | 1118 | 3.6 | 0.519 | 9.3 | LOS A | 1.9 | 13.7 | 0.60 | 0.70 | 0.60 | 47.3 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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LANE SUMMARY

 **Site: 101 [PM - FU - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [PM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------------|-----------------|----------|-----------------|----------|------------------|-----------|-----------------|-------------|------------------|-----------------------|------------|-------------|-------------|--------------------|--------------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Old South Head Road (S) | | | | | | | | | | | | | | | |
| Lane 1 | 15 | 0.0 | 15 | 0.0 | 1625 | 0.009 | 100 | 6.8 | LOS A | 0.0 | 0.0 | Short | 6 | 0.0 | NA |
| Lane 2 | 479 | 3.1 | 479 | 3.1 | 545 ¹ | 0.880 | 100 | 49.8 | LOS D | 15.6 | 112.5 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 3 | 492 | 1.9 | 492 | 1.9 | 559 | 0.880 | 100 | 51.8 | LOS D | 16.2 | 115.1 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Approach | 986 | 2.5 | 986 | 2.5 | | 0.880 | | 50.2 | LOS D | 16.2 | 115.1 | | | | |
| East: Curlewis Street | | | | | | | | | | | | | | | |
| Lane 1 | 494 | 5.1 | 494 | 5.1 | 1039 | 0.475 | 100 | 18.6 | LOS B | 8.5 | 61.9 | Full | 130 | 0.0 | 0.0 |
| Lane 2 | 222 | 1.4 | 222 | 1.4 | 265 ¹ | 0.839 | 100 | 54.2 | LOS D | 7.3 | 51.5 | Short | 92 | 0.0 | NA |
| Lane 3 | 58 | 1.8 | 58 | 1.8 | 79 | 0.734 | 87 ⁵ | 63.4 | LOS E | 1.9 | 13.7 | Short | 42 | 0.0 | NA |
| Approach | 774 | 3.8 | 774 | 3.8 | | 0.839 | | 32.2 | LOS C | 8.5 | 61.9 | | | | |
| North: Old South Head Road (N) | | | | | | | | | | | | | | | |
| Lane 1 | 46 | 2.3 | 46 | 2.3 | 1067 | 0.043 | 100 | 12.3 | LOS A | 0.5 | 3.5 | Short | 10 | 0.0 | NA |
| Lane 2 | 468 | 3.9 | 468 | 3.9 | 525 ¹ | 0.891 | 100 | 48.1 | LOS D | 15.8 | 114.2 | Full | 500 | 0.0 | 0.0 |
| Lane 3 | 501 | 4.4 | 501 | 4.4 | 562 | 0.891 | 100 | 50.1 | LOS D | 17.2 | 124.8 | Full | 500 | 0.0 | 0.0 |
| Approach | 1016 | 4.0 | 1016 | 4.0 | | 0.891 | | 47.5 | LOS D | 17.2 | 124.8 | | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | | |
| Lane 1 | 143 | 2.3 | 143 | 2.3 | 409 | 0.349 | 40 ⁷ | 43.4 | LOS D | 3.8 | 27.3 | Short (P) | 35 | 40.0 ^{N2} | NA |
| Lane 2 | 159 | 2.6 | 159 | 2.6 | 182 | 0.873 | 100 | 59.3 | LOS E | 5.3 | 38.0 | | Full | 500 | 40.0 ^{N2} |
| Approach | 302 | 2.4 | 302 | 2.4 | | 0.873 | | 51.8 | LOS D | 5.3 | 38.0 | | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | | |
| Lane 1 | 148 | 4.7 | 148 | 4.7 | 309 | 0.479 | 55 ⁶ | 50.2 | LOS D | 4.2 | 30.7 | Full | 500 | 30.0 ^{N2} | 0.0 |
| Lane 2 | 194 | 4.0 | 194 | 4.0 | 221 | 0.876 | 100 | 61.6 | LOS E | 6.7 | 48.4 | Full | 500 | 0.0 | 0.0 |
| Approach | 342 | 4.3 | 342 | 4.3 | | 0.876 | | 56.7 | LOS E | 6.7 | 48.4 | | | | |
| Intersection | 3420 | 3.4 | 3420 | 3.4 | | 0.891 | | 46.1 | LOS D | 17.2 | 124.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.

⁵ Lane under-utilisation found by the program

⁶ Lane under-utilisation due to downstream effects

⁷ Lane under-utilisation specified by the user

^{N2} Capacity Adjustment specified by user.

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|--------------------------------|----------|----------|----------|----------|-------|---------------|---------------------|---------------------|----------------------|----------------------|--------------------|
| South: Old South Head Road (S) | | | | | | | | | | | |
| Mov. From S To Exit: | L3 SW | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 15 | - | - | - | 15 | 0.0 | 1625 | 0.009 | 100 | 0.0 | 2 |
| Lane 2 | - | 42 | 437 | - | 479 | 3.1 | 545 ¹ | 0.880 | 100 | NA | NA |
| Lane 3 | - | - | 201 | 292 | 492 | 1.9 | 559 | 0.880 | 100 | NA | NA |
| Approach | 15 | 42 | 638 | 292 | 986 | 2.5 | | 0.880 | | | |
| East: Curlewis Street | | | | | | | | | | | |
| Mov. From E To Exit: | L2 S | L1 SW | T1 W | R2 N | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 494 | - | - | - | 494 | 5.1 | 1039 | 0.475 | 100 | NA | NA |
| Lane 2 | - | 89 | 133 | - | 222 | 1.4 | 265 ¹ | 0.839 | 100 | 0.0 | 1 |
| Lane 3 | - | - | - | 58 | 58 | 1.8 | 79 | 0.734 | 87 ⁵ | 0.0 | 2 |
| Approach | 494 | 89 | 133 | 58 | 774 | 3.8 | | 0.839 | | | |
| North: Old South Head Road (N) | | | | | | | | | | | |
| Mov. From N To Exit: | L2 E | T1 S | R1 SW | R2 W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 46 | - | - | - | 46 | 2.3 | 1067 | 0.043 | 100 | 0.0 | 2 |
| Lane 2 | - | 468 | - | - | 468 | 3.9 | 525 ¹ | 0.891 | 100 | NA | NA |
| Lane 3 | - | 318 | 122 | 61 | 501 | 4.4 | 562 | 0.891 | 100 | NA | NA |
| Approach | 46 | 786 | 122 | 61 | 1016 | 4.0 | | 0.891 | | | |
| West: O'Sullivan Road (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | R2 S | R3 SW | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 74 | 69 | - | - | 143 | 2.3 | 409 | 0.349 | 40 ⁷ | 26.8 | 2 |
| Lane 2 | - | 113 | 45 | 1 | 159 | 2.6 | 182 | 0.873 | 100 | NA | NA |
| Approach | 74 | 182 | 45 | 1 | 302 | 2.4 | | 0.873 | | | |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| Mov. From SW To Exit: | L3 W | L1 N | R1 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 9 | 139 | - | 148 | 4.7 | 309 | 0.479 | 55 ⁶ | NA | NA | |
| Lane 2 | - | 70 | 124 | 194 | 4.0 | 221 | 0.876 | 100 | NA | NA | |
| Approach | 9 | 208 | 124 | 342 | 4.3 | | 0.876 | | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 3420 | 3.4 | | 0.891 | | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

- ¹ Reduced capacity due to a short lane effect. Short lane queues may extend into the full-length lanes. Some upstream delays at entry to short lanes are not included.
- ⁵ Lane under-utilisation found by the program
- ⁶ Lane under-utilisation due to downstream effects
- ⁷ Lane under-utilisation specified by the user

| Merge Analysis | | | | | | | | | | | |
|-------------------------------------|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|-------------------------------------|------------------------|---------------------|----------------------|-----------------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Lane Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| South Exit: Old South Head Road (S) | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|-------------------------------------|---|-----------------------------|-------|---------------------------|-----|------|------|-----|------|-------|-----|-----|--|
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |
| Full Length Lane | 2 | Merge Analysis not applied. | | | | | | | | | | | |
| East Exit: Curlewis Street | | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |
| North Exit: Old South Head Road (N) | | | | | | | | | | | | | |
| Merge Type: Priority | | | | | | | | | | | | | |
| Exit Short Lane | 1 | 100 | 0.0 | 328 | 333 | 3.00 | 2.00 | 650 | 1460 | 0.445 | 0.5 | 1.2 | |
| Merge Lane | 2 | - | 100.0 | Merge Lane is not Opposed | | | | 328 | 1800 | 0.182 | 0.0 | 0.0 | |
| West Exit: O'Sullivan Road (W) | | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |
| SouthWest Exit: Birriga Road (SW) | | | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | | | |

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LANE SUMMARY

 **Site: 101 [PM - FU - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [PM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|------------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Wellington Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 175 | 2.4 | 175 | 2.4 | 589 | 0.297 | 100 | 11.4 | LOS A | 0.8 | 5.4 | Full | 500 | 0.0 | 0.0 |
| Approach | 175 | 2.4 | 175 | 2.4 | | 0.297 | | 11.4 | LOS A | 0.8 | 5.4 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 186 | 8.5 | 186 | 8.5 | 671 | 0.278 | 100 | 9.5 | LOS A | 0.7 | 5.2 | Full | 500 | 0.0 | 0.0 |
| Approach | 186 | 8.5 | 186 | 8.5 | | 0.278 | | 9.5 | LOS A | 0.7 | 5.2 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 546 | 2.9 | 546 | 2.9 | 1053 | 0.519 | 100 | 9.8 | LOS A | 1.9 | 13.7 | Full | 500 | 0.0 | 0.0 |
| Approach | 546 | 2.9 | 546 | 2.9 | | 0.519 | | 9.8 | LOS A | 1.9 | 13.7 | | | | |
| West: Curlewis Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 211 | 2.0 | 211 | 2.0 | 1066 | 0.198 | 100 | 6.1 | LOS A | 0.4 | 2.9 | Full | 130 | 0.0 | 0.0 |
| Approach | 211 | 2.0 | 211 | 2.0 | | 0.198 | | 6.1 | LOS A | 0.4 | 2.9 | | | | |
| Intersection | 1118 | 3.6 | 1118 | 3.6 | | 0.519 | | 9.3 | LOS A | 1.9 | 13.7 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

| Approach Lane Flows (veh/h) | | | | | | | | | | | |
|------------------------------|------|------|------|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| South: Wellington Street (S) | | | | | | | | | | | |
| Mov. From S To Exit: | L2 W | T1 N | R2 E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 49 | 104 | 21 | 175 | 2.4 | 589 | 0.297 | 100 | NA | NA | |
| Approach | 49 | 104 | 21 | 175 | 2.4 | | 0.297 | | | | |
| East: Curlewis Street (E) | | | | | | | | | | | |
| Mov. From E To Exit: | T1 W | R2 N | U E | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 172 | 9 | 5 | 186 | 8.5 | 671 | 0.278 | 100 | NA | NA | |
| Approach | 172 | 9 | 5 | 186 | 8.5 | | 0.278 | | | | |
| North: Wellington Street (N) | | | | | | | | | | | |
| Mov. | L2 | R2 | U | Total | %HV | | Deg. | Lane | Prob. | Ov. | |

| From N To Exit: | E | W | N | | | Cap. veh/h | Satn v/c | Util. % | SL % | Ov. % | Lane No. |
|----------------------------|---------|---------|--------|-------|-------|---------------|---------------------|--------------------|------------------|----------|-------------|
| Lane 1 | 12 | 534 | 1 | 546 | 2.9 | 1053 | 0.519 | 100 | NA | NA | |
| Approach | 12 | 534 | 1 | 546 | 2.9 | | 0.519 | | | | |
| West: Curlewis Street (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 N | T1 E | U W | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL % | Ov. % | Lane No. |
| Lane 1 | 1 | 193 | 17 | 211 | 2.0 | 1066 | 0.198 | 100 | NA | NA | |
| Approach | 1 | 193 | 17 | 211 | 2.0 | | 0.198 | | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 1118 | 3.6 | | | 0.519 | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis

| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
|-----------------------------------|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|-------------------------------|-------------------|---------------------|----------------------|-----------------------|
| East Exit: Curlewis Street (E) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Wellington Street (N) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Curlewis Street (W) | | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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MOVEMENT SUMMARY

 **Site: 101 [AM - FU - Blair Street / Glenayr Avenue (Site Folder: General)]**

 **Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]**

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 599 | 3.0 | 599 | 3.0 | 0.320 | 0.1 | LOS A | 0.0 | 0.3 | 0.02 | 0.01 | 0.02 | 59.7 |
| 6 | R2 | 6 | 0.0 | 6 | 0.0 | 0.320 | 9.2 | LOS A | 0.0 | 0.3 | 0.02 | 0.01 | 0.02 | 56.0 |
| Approach | | 605 | 3.0 | 605 | 3.0 | 0.320 | 0.2 | NA | 0.0 | 0.3 | 0.02 | 0.01 | 0.02 | 59.7 |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | |
| 7 | L2 | 27 | 0.0 | 27 | 0.0 | 0.540 | 15.2 | LOS B | 0.9 | 6.6 | 0.84 | 1.12 | 1.30 | 34.5 |
| 9 | R2 | 132 | 0.8 | 132 | 0.8 | 0.540 | 26.1 | LOS B | 0.9 | 6.6 | 0.84 | 1.12 | 1.30 | 42.5 |
| Approach | | 159 | 0.7 | 159 | 0.7 | 0.540 | 24.2 | LOS B | 0.9 | 6.6 | 0.84 | 1.12 | 1.30 | 41.6 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 93 | 3.4 | 93 | 3.4 | 0.305 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.10 | 0.00 | 57.2 |
| 11 | T1 | 481 | 4.4 | 481 | 4.4 | 0.305 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.10 | 0.00 | 58.1 |
| Approach | | 573 | 4.2 | 573 | 4.2 | 0.305 | 1.0 | NA | 0.0 | 0.0 | 0.00 | 0.10 | 0.00 | 57.9 |
| All Vehicles | | 1337 | 3.2 | 1337 | 3.2 | 0.540 | 3.4 | NA | 0.9 | 6.6 | 0.11 | 0.18 | 0.17 | 54.8 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [AM - FU - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 47 | 2.2 | 47 | 2.2 | 0.194 | 8.4 | LOS A | 0.3 | 2.2 | 0.69 | 0.76 | 0.69 | 46.8 |
| 2 | T1 | 38 | 2.8 | 38 | 2.8 | 0.194 | 8.6 | LOS A | 0.3 | 2.2 | 0.69 | 0.76 | 0.69 | 52.2 |
| 3 | R2 | 4 | 25.0 | 4 | 25.0 | 0.194 | 13.1 | LOS A | 0.3 | 2.2 | 0.69 | 0.76 | 0.69 | 46.8 |
| 3u | U | 3 | 33.3 | 3 | 33.3 | 0.194 | 15.2 | LOS B | 0.3 | 2.2 | 0.69 | 0.76 | 0.69 | 51.2 |
| Approach | | 93 | 4.5 | 93 | 4.5 | 0.194 | 8.9 | LOS A | 0.3 | 2.2 | 0.69 | 0.76 | 0.69 | 49.9 |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 4 | L2 | 8 | 12.5 | 8 | 12.5 | 0.826 | 14.5 | LOS A | 1.4 | 10.0 | 0.73 | 1.05 | 1.30 | 38.9 |
| 5 | T1 | 323 | 2.3 | 323 | 2.3 | 0.826 | 14.8 | LOS B | 1.4 | 10.0 | 0.73 | 1.05 | 1.30 | 7.4 |
| 6 | R2 | 52 | 2.0 | 52 | 2.0 | 0.826 | 17.6 | LOS B | 1.4 | 10.0 | 0.73 | 1.05 | 1.30 | 40.0 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.826 | 19.3 | LOS B | 1.4 | 10.0 | 0.73 | 1.05 | 1.30 | 7.4 |
| Approach | | 389 | 2.4 | 389 | 2.4 | 0.826 | 15.2 | LOS B | 1.4 | 10.0 | 0.73 | 1.05 | 1.30 | 18.5 |
| North: Mitchell Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 33 | 0.0 | 33 | 0.0 | 0.627 | 7.6 | LOS A | 1.3 | 9.0 | 0.59 | 0.76 | 0.66 | 45.8 |
| 8 | T1 | 145 | 1.4 | 145 | 1.4 | 0.627 | 7.9 | LOS A | 1.3 | 9.0 | 0.59 | 0.76 | 0.66 | 51.5 |
| 9 | R2 | 220 | 4.3 | 220 | 4.3 | 0.627 | 11.4 | LOS A | 1.3 | 9.0 | 0.59 | 0.76 | 0.66 | 45.8 |
| 9u | U | 8 | 0.0 | 8 | 0.0 | 0.627 | 13.0 | LOS A | 1.3 | 9.0 | 0.59 | 0.76 | 0.66 | 51.8 |
| Approach | | 406 | 2.8 | 406 | 2.8 | 0.627 | 9.9 | LOS A | 1.3 | 9.0 | 0.59 | 0.76 | 0.66 | 48.8 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 220 | 5.8 | 220 | 5.8 | 0.435 | 3.1 | LOS A | 1.1 | 8.4 | 0.38 | 0.52 | 0.38 | 50.7 |
| 11 | T1 | 209 | 4.5 | 209 | 4.5 | 0.435 | 3.6 | LOS A | 1.1 | 8.4 | 0.38 | 0.52 | 0.38 | 26.6 |
| 12 | R2 | 49 | 6.4 | 49 | 6.4 | 0.435 | 6.6 | LOS A | 1.1 | 8.4 | 0.38 | 0.52 | 0.38 | 51.8 |
| 12u | U | 21 | 0.0 | 21 | 0.0 | 0.435 | 8.4 | LOS A | 1.1 | 8.4 | 0.38 | 0.52 | 0.38 | 26.6 |
| Approach | | 500 | 5.1 | 500 | 5.1 | 0.435 | 3.9 | LOS A | 1.1 | 8.4 | 0.38 | 0.52 | 0.38 | 47.5 |
| All Vehicles | | 1388 | 3.6 | 1388 | 3.6 | 0.826 | 9.1 | LOS A | 1.4 | 10.0 | 0.56 | 0.76 | 0.74 | 43.0 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [AM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

Added 10% of 295 Children for Future Case

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|------------------|-----------|------------------|-----------|-----------|-------------|------------------|-----------------------|-------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 389 | 2.4 | 389 | 2.4 | 1.044 | 79.0 | LOS F | 13.7 | 97.9 | 1.00 | 1.91 | 3.33 | 16.7 |
| Approach | | 389 | 2.4 | 389 | 2.4 | 1.044 | 79.0 | LOS F | 13.7 | 97.9 | 1.00 | 1.91 | 3.33 | 16.7 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 252 | 4.2 | 252 | 4.2 | 0.342 | 2.9 | LOS A | 0.7 | 4.8 | 0.39 | 0.53 | 0.39 | 52.3 |
| Approach | | 252 | 4.2 | 252 | 4.2 | 0.342 | 2.9 | LOS A | 0.7 | 4.8 | 0.39 | 0.53 | 0.39 | 52.3 |
| All Vehicles | | 640 | 3.1 | 640 | 3.1 | 1.044 | 49.1 | NA | 13.7 | 97.9 | 0.76 | 1.37 | 2.17 | 22.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [AM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

Added 10% of 270 kids

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|------------------|-----------|------------------|-----------|-----------|-------------|------------------|-----------------------|-------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 610 | 2.9 | 610 | 2.9 | 0.769 | 8.0 | LOS A | 4.9 | 35.0 | 0.68 | 0.69 | 0.89 | 15.1 |
| Approach | | 610 | 2.9 | 610 | 2.9 | 0.769 | 8.0 | LOS A | 4.9 | 35.0 | 0.68 | 0.69 | 0.89 | 15.1 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 494 | 5.1 | 494 | 5.1 | 0.631 | 7.0 | LOS A | 2.8 | 20.8 | 0.49 | 0.61 | 0.57 | 27.7 |
| Approach | | 494 | 5.1 | 494 | 5.1 | 0.631 | 7.0 | LOS A | 2.8 | 20.8 | 0.49 | 0.61 | 0.57 | 27.7 |
| All Vehicles | | 1105 | 3.9 | 1105 | 3.9 | 0.769 | 7.6 | NA | 4.9 | 35.0 | 0.59 | 0.65 | 0.75 | 21.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE SUMMARY

 **Site: 101 [AM - FU - Blair Street / Glenayr Avenue (Site Folder: General)]**

 **Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]**

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|---------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|-----------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 605 | 3.0 | 605 | 3.0 | 1893 | 0.320 | 100 | 0.2 | LOS A | 0.0 | 0.3 | Full | 90 | 0.0 | 0.0 |
| Approach | 605 | 3.0 | 605 | 3.0 | | 0.320 | | 0.2 | NA | 0.0 | 0.3 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | | |
| Lane 1 | 159 | 0.7 | 159 | 0.7 | 294 | 0.540 | 100 | 24.2 | LOS B | 0.9 | 6.6 | Full | 500 | 0.0 | 0.0 |
| Approach | 159 | 0.7 | 159 | 0.7 | | 0.540 | | 24.2 | LOS B | 0.9 | 6.6 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 573 | 4.2 | 573 | 4.2 | 1882 | 0.305 | 100 | 1.0 | LOS A | 0.0 | 0.0 | Full | 500 | 0.0 | 0.0 |
| Approach | 573 | 4.2 | 573 | 4.2 | | 0.305 | | 1.0 | NA | 0.0 | 0.0 | | | | |
| Intersection | 1337 | 3.2 | 1337 | 3.2 | | 0.540 | | 3.4 | NA | 0.9 | 6.6 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|------------|---------------|--------------|----------------|--------------|--|
| East: Blair Street (E) | | | | | | | | | | |
| Mov. From E To Exit: | T1 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | W | N | | | | | | | | |
| Lane 1 | 599 | 6 | 605 | 3.0 | 1893 | 0.320 | 100 | NA | NA | |
| Approach | 599 | 6 | 605 | 3.0 | | 0.320 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | |
| Mov. From N To Exit: | L2 | R2 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | E | W | | | | | | | | |
| Lane 1 | 27 | 132 | 159 | 0.7 | 294 | 0.540 | 100 | NA | NA | |
| Approach | 27 | 132 | 159 | 0.7 | | 0.540 | | | | |
| West: Blair Street (W) | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| | N | E | | | | | | | | |
| Lane 1 | 93 | 481 | 573 | 4.2 | 1882 | 0.305 | 100 | NA | NA | |

| | | | | | |
|--------------------------|------|-----|-------|-----|-------|
| Approach | 93 | 481 | 573 | 4.2 | 0.305 |
| Total %HV Deg.Satn (v/c) | | | | | |
| Intersection | 1337 | 3.2 | 0.540 | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|--|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Glenayr Avenue (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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Project: \\mteserver\mte storage\Jobs\2021\210231\SIDRA\21 04 27\295 Children\21 04 20 - Future (excl signals).sip9

LANE SUMMARY

 **Site: 101 [AM - FU - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|----------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-----------------------|--------------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h | HV % | [Total veh/h | HV % | veh/h | v/c | % | sec | | [Veh | Dist] m | | m | % | % |
| South: Mitchell Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 93 | 4.5 | 93 | 4.5 | 478 | 0.194 | 100 | 8.9 | LOS A | 0.3 | 2.2 | Full | 500 | -34.0 ^{N3} | 0.0 |
| Approach | 93 | 4.5 | 93 | 4.5 | | 0.194 | | 8.9 | LOS A | 0.3 | 2.2 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 389 | 2.4 | 389 | 2.4 | 471 | 0.826 | 100 | 15.2 | LOS B | 1.4 ^{N4} | 10.0 ^{N4} | Full | 10 | -45.3 ^{N3} | 49.9 |
| Approach | 389 | 2.4 | 389 | 2.4 | | 0.826 | | 15.2 | LOS B | 1.4 | 10.0 | | | | |
| North: Mitchell Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 406 | 2.8 | 406 | 2.8 | 648 | 0.627 | 100 | 9.9 | LOS A | 1.3 | 9.0 | Full | 500 | -35.5 ^{N3} | 0.0 |
| Approach | 406 | 2.8 | 406 | 2.8 | | 0.627 | | 9.9 | LOS A | 1.3 | 9.0 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 500 | 5.1 | 500 | 5.1 | 1149 | 0.435 | 100 | 3.9 | LOS A | 1.1 | 8.4 | Full | 35 | -8.5 ^{N3} | 0.0 |
| Approach | 500 | 5.1 | 500 | 5.1 | | 0.435 | | 3.9 | LOS A | 1.1 | 8.4 | | | | |
| Intersection | 1388 | 3.6 | 1388 | 3.6 | | 0.826 | | 9.1 | LOS A | 1.4 | 10.0 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

| Approach Lane Flows (veh/h) | | | | | | | | | | | | | |
|-----------------------------|----|-----|----|---|-------|-----|--|------------|---------------|--------------|----------------|--------------|--|
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Mov. From S To Exit: | L2 | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 47 | 38 | 4 | 3 | 93 | 4.5 | | 478 | 0.194 | 100 | NA | NA | |
| Approach | 47 | 38 | 4 | 3 | 93 | 4.5 | | | 0.194 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | |
| Mov. From E To Exit: | L2 | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 8 | 323 | 52 | 5 | 389 | 2.4 | | 471 | 0.826 | 100 | NA | NA | |
| Approach | 8 | 323 | 52 | 5 | 389 | 2.4 | | | 0.826 | | | | |

| North: Mitchell Street (N) | | | | | | | | | | | |
|----------------------------|------|-----|-----|----|-------|-----|---------------|---------------------|--------------------|----------------------|--------------------|
| Mov. From N To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 33 | 145 | 220 | 8 | 406 | 2.8 | 648 | 0.627 | 100 | NA | NA |
| Approach | 33 | 145 | 220 | 8 | 406 | 2.8 | | 0.627 | | | |
| West: Blair Street (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 220 | 209 | 49 | 21 | 500 | 5.1 | 1149 | 0.435 | 100 | NA | NA |
| Approach | 220 | 209 | 49 | 21 | 500 | 5.1 | | 0.435 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 1388 | 3.6 | | | 0.826 | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|---|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|--|---------------------|----------------------|-----------------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Mitchell Street (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 Site: 101 [AM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

Added 10% of 295 Children for Future Case

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|---------------|------|---------------|------|-------|-----------|------------|-------------|------------------|-----------------------|----------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h | HV % | [Total veh/h | HV % | veh/h | v/c | % | sec | | [Veh | Dist] m | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 389 | 2.4 | 389 | 2.4 | 372 | 1.044 | 100 | 79.0 | LOS F | 13.7 | 97.9 | Full | 500 | -49.9 ^{N7} | 0.0 |
| Approach | 389 | 2.4 | 389 | 2.4 | | 1.044 | | 79.0 | LOS F | 13.7 | 97.9 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 252 | 4.2 | 252 | 4.2 | 736 | 0.342 | 100 | 2.9 | LOS A | 0.7 | 4.8 | Full | 10 | 0.0 | 10.7 |
| Approach | 252 | 4.2 | 252 | 4.2 | | 0.342 | | 2.9 | LOS A | 0.7 | 4.8 | | | | |
| Intersection | 640 | 3.1 | 640 | 3.1 | | 1.044 | | 49.1 | NA | 13.7 | 97.9 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N7} The capacity reduction has been determined from the queue blockage probability of a Site further downstream due to intermediate continuous lanes.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|-----|-------|-----|------------|-----------|------------|----------|----------|--|
| East: Blair Street (E) | | | | | | | | | |
| Mov. | T1 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From E To Exit: | W | | | Cap. veh/h | v/c | % | % | No. | |
| Lane 1 | 389 | 389 | 2.4 | 372 | 1.044 | 100 | NA | NA | |
| Approach | 389 | 389 | 2.4 | | 1.044 | | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. | T1 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. Lane | |
| From W To Exit: | E | | | Cap. veh/h | v/c | % | % | No. | |
| Lane 1 | 252 | 252 | 4.2 | 736 | 0.342 | 100 | NA | NA | |
| Approach | 252 | 252 | 4.2 | | 0.342 | | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | |
| Intersection | 640 | 3.1 | | 1.044 | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|----------------|------------------|-------------------|----------------------|--------------------|--------------|-------------------|-------------------------|-----------|------------|-------------|--|
| | Exit Lane Number | Short Lane Length | Percent Opng in Lane | Opposing Flow Rate | Critical Gap | Follow-up Headway | Lane Capacity Flow Rate | Deg. Satn | Min. Delay | Merge Delay | |

| | | m | % veh/h | pcu/h | sec | sec veh/h | veh/h | v/c | sec | sec |
|--------------------------------|---|-----------------------------|---------|-------|-----|-----------|-------|-----|-----|-----|
| East Exit: Blair Street (E) | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | |
| West Exit: Blair Street (W) | | | | | | | | | | |
| Merge Type: Not Applied | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | |

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LANE SUMMARY

 Site: 101 [AM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [AM Blair Corridor (Network Folder: Blair Corridor)]

Added 10% of 270 kids

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|--------------------|-------------|-------------|-----------|--------------|--|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. | |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % | |
| East: Blair Street (E) | | | | | | | | | | | | | | | | |
| Lane 1 | 610 | 2.9 | 610 | 2.9 | 793 | 0.769 | 100 | 8.0 | LOS A | 4.9 ^{N4} | 35.0 ^{N4} | Full | 35 | 0.0 | 49.9 | |
| Approach | 610 | 2.9 | 610 | 2.9 | | 0.769 | | 8.0 | LOS A | 4.9 | 35.0 | | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | | |
| Lane 1 | 494 | 5.1 | 494 | 5.1 | 784 | 0.631 | 100 | 7.0 | LOS A | 2.8 | 20.8 | Full | 90 | 0.0 | 0.0 | |
| Approach | 494 | 5.1 | 494 | 5.1 | | 0.631 | | 7.0 | LOS A | 2.8 | 20.8 | | | | | |
| Intersection | 1105 | 3.9 | 1105 | 3.9 | | 0.769 | | 7.6 | NA | 4.9 | 35.0 | | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N4} Average back of queue has been restricted to the available queue storage space.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|------|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 610 | 610 | 2.9 | | 793 | 0.769 | 100 | NA | NA |
| Approach | 610 | 610 | 2.9 | | | 0.769 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 494 | 494 | 5.1 | | 784 | 0.631 | 100 | NA | NA |
| Approach | 494 | 494 | 5.1 | | | 0.631 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 1105 | 3.9 | | | | 0.769 | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|------------------|---------------------|------------------------|--------------------------|-----------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate veh/h | Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |

| | | |
|---|---|-----------------------------|
| East Exit: Blair Street (E) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Blair Street / Glenayr Avenue (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 494 | 4.1 | 494 | 4.1 | 0.272 | 0.2 | LOS A | 0.1 | 0.5 | 0.04 | 0.01 | 0.05 | 59.4 |
| 6 | R2 | 11 | 0.0 | 11 | 0.0 | 0.272 | 9.6 | LOS A | 0.1 | 0.5 | 0.04 | 0.01 | 0.05 | 55.7 |
| Approach | | 504 | 4.0 | 504 | 4.0 | 0.272 | 0.4 | NA | 0.1 | 0.5 | 0.04 | 0.01 | 0.05 | 59.3 |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | |
| 7 | L2 | 15 | 0.0 | 15 | 0.0 | 0.411 | 13.3 | LOS A | 0.6 | 4.5 | 0.81 | 1.07 | 1.08 | 36.6 |
| 9 | R2 | 110 | 1.9 | 110 | 1.9 | 0.411 | 22.3 | LOS B | 0.6 | 4.5 | 0.81 | 1.07 | 1.08 | 44.0 |
| Approach | | 126 | 1.7 | 126 | 1.7 | 0.411 | 21.2 | LOS B | 0.6 | 4.5 | 0.81 | 1.07 | 1.08 | 43.4 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 136 | 1.6 | 136 | 1.6 | 0.348 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 57.0 |
| 11 | T1 | 508 | 3.1 | 508 | 3.1 | 0.348 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 57.6 |
| Approach | | 644 | 2.8 | 644 | 2.8 | 0.348 | 1.3 | NA | 0.0 | 0.0 | 0.00 | 0.13 | 0.00 | 57.4 |
| All Vehicles | | 1274 | 3.1 | 1274 | 3.1 | 0.411 | 2.9 | NA | 0.6 | 4.5 | 0.10 | 0.17 | 0.13 | 55.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | v/c | sec | | [Veh. veh | Dist] m | | | | km/h |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 41 | 5.1 | 41 | 5.1 | 0.230 | 12.5 | LOS A | 0.5 | 3.9 | 0.91 | 0.91 | 0.91 | 42.4 |
| 2 | T1 | 36 | 0.0 | 36 | 0.0 | 0.230 | 12.5 | LOS A | 0.5 | 3.9 | 0.91 | 0.91 | 0.91 | 49.3 |
| 3 | R2 | 11 | 0.0 | 11 | 0.0 | 0.230 | 15.9 | LOS B | 0.5 | 3.9 | 0.91 | 0.91 | 0.91 | 42.4 |
| 3u | U | 1 | 0.0 | 1 | 0.0 | 0.230 | 17.7 | LOS B | 0.5 | 3.9 | 0.91 | 0.91 | 0.91 | 49.6 |
| Approach | | 88 | 2.4 | 88 | 2.4 | 0.230 | 13.0 | LOS A | 0.5 | 3.9 | 0.91 | 0.91 | 0.91 | 46.2 |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 4 | L2 | 9 | 0.0 | 9 | 0.0 | 0.853 | 12.0 | LOS A | 1.4 | 10.0 | 0.93 | 1.05 | 1.40 | 40.2 |
| 5 | T1 | 283 | 2.2 | 283 | 2.2 | 0.853 | 12.7 | LOS A | 1.4 | 10.0 | 0.93 | 1.05 | 1.40 | 8.7 |
| 6 | R2 | 465 | 0.2 | 465 | 0.2 | 0.853 | 15.4 | LOS B | 1.4 | 10.0 | 0.93 | 1.05 | 1.40 | 40.9 |
| 6u | U | 1 | 0.0 | 1 | 0.0 | 0.853 | 17.2 | LOS B | 1.4 | 10.0 | 0.93 | 1.05 | 1.40 | 8.7 |
| Approach | | 759 | 1.0 | 759 | 1.0 | 0.853 | 14.4 | LOS A | 1.4 | 10.0 | 0.93 | 1.05 | 1.40 | 35.3 |
| North: Mitchell Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 28 | 3.7 | 28 | 3.7 | 0.419 | 6.9 | LOS A | 1.0 | 7.3 | 0.67 | 0.75 | 0.67 | 46.2 |
| 8 | T1 | 106 | 3.0 | 106 | 3.0 | 0.419 | 7.1 | LOS A | 1.0 | 7.3 | 0.67 | 0.75 | 0.67 | 51.8 |
| 9 | R2 | 172 | 9.8 | 172 | 9.8 | 0.419 | 10.8 | LOS A | 1.0 | 7.3 | 0.67 | 0.75 | 0.67 | 46.2 |
| 9u | U | 4 | 50.0 | 4 | 50.0 | 0.419 | 14.0 | LOS A | 1.0 | 7.3 | 0.67 | 0.75 | 0.67 | 50.1 |
| Approach | | 310 | 7.5 | 310 | 7.5 | 0.419 | 9.2 | LOS A | 1.0 | 7.3 | 0.67 | 0.75 | 0.67 | 48.9 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 186 | 5.1 | 186 | 5.1 | 0.838 | 17.2 | LOS B | 4.2 | 30.2 | 0.94 | 1.21 | 1.60 | 37.7 |
| 11 | T1 | 277 | 2.3 | 277 | 2.3 | 0.838 | 17.5 | LOS B | 4.2 | 30.2 | 0.94 | 1.21 | 1.60 | 9.6 |
| 12 | R2 | 36 | 0.0 | 36 | 0.0 | 0.838 | 20.5 | LOS B | 4.2 | 30.2 | 0.94 | 1.21 | 1.60 | 38.6 |
| 12u | U | 27 | 0.0 | 27 | 0.0 | 0.838 | 22.3 | LOS B | 4.2 | 30.2 | 0.94 | 1.21 | 1.60 | 9.6 |
| Approach | | 526 | 3.0 | 526 | 3.0 | 0.838 | 17.8 | LOS B | 4.2 | 30.2 | 0.94 | 1.21 | 1.60 | 27.8 |
| All Vehicles | | 1684 | 2.9 | 1684 | 2.9 | 0.853 | 14.4 | LOS A | 4.2 | 30.2 | 0.88 | 1.04 | 1.30 | 37.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [PM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 341 | 2.2 | 341 | 2.2 | 0.929 | 26.5 | LOS B | 4.7 | 33.8 | 0.46 | 1.13 | 1.45 | 32.2 |
| Approach | | 341 | 2.2 | 341 | 2.2 | 0.929 | 26.5 | LOS B | 4.7 | 33.8 | 0.46 | 1.13 | 1.45 | 32.2 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 316 | 2.3 | 316 | 2.3 | 0.432 | 3.5 | LOS A | 1.0 | 7.5 | 0.44 | 0.57 | 0.47 | 51.6 |
| Approach | | 316 | 2.3 | 316 | 2.3 | 0.432 | 3.5 | LOS A | 1.0 | 7.5 | 0.44 | 0.57 | 0.47 | 51.6 |
| All Vehicles | | 657 | 2.2 | 657 | 2.2 | 0.929 | 15.4 | NA | 4.7 | 33.8 | 0.45 | 0.86 | 0.98 | 39.4 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 Site: 101 [PM - Blair West of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|------------------|-----------|------------------|-----------|-----------|-------------|------------------|-----------------------|-------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 2 | T1 | 517 | 3.9 | 517 | 3.9 | 0.649 | 4.9 | LOS A | 3.1 | 22.3 | 0.49 | 0.57 | 0.56 | 21.2 |
| Approach | | 517 | 3.9 | 517 | 3.9 | 0.649 | 4.9 | LOS A | 3.1 | 22.3 | 0.49 | 0.57 | 0.56 | 21.2 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 8 | T1 | 525 | 3.0 | 525 | 3.0 | 0.915 | 18.9 | LOS B | 8.1 | 58.4 | 0.50 | 0.82 | 0.99 | 14.5 |
| Approach | | 525 | 3.0 | 525 | 3.0 | 0.915 | 18.9 | LOS B | 8.1 | 58.4 | 0.50 | 0.82 | 0.99 | 14.5 |
| All Vehicles | | 1042 | 3.4 | 1042 | 3.4 | 0.915 | 12.0 | NA | 8.1 | 58.4 | 0.49 | 0.70 | 0.78 | 16.0 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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LANE SUMMARY

Site: 101 [PM - FU - Blair Street / Glenayr Avenue (Site Folder: General)]

Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|---------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|--------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 504 | 4.0 | 504 | 4.0 | 1854 | 0.272 | 100 | 0.4 | LOS A | 0.1 | 0.5 | Full | 90 | 0.0 | 0.0 |
| Approach | 504 | 4.0 | 504 | 4.0 | | 0.272 | | 0.4 | NA | 0.1 | 0.5 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | | |
| Lane 1 | 126 | 1.7 | 126 | 1.7 | 306 | 0.411 | 100 | 21.2 | LOS B | 0.6 | 4.5 | Full | 500 | -0.4 ^{N3} | 0.0 |
| Approach | 126 | 1.7 | 126 | 1.7 | | 0.411 | | 21.2 | LOS B | 0.6 | 4.5 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 644 | 2.8 | 644 | 2.8 | 1851 | 0.348 | 100 | 1.3 | LOS A | 0.0 | 0.0 | Full | 500 | -2.4 ^{N3} | 0.0 |
| Approach | 644 | 2.8 | 644 | 2.8 | | 0.348 | | 1.3 | NA | 0.0 | 0.0 | | | | |
| Intersection | 1274 | 3.1 | 1274 | 3.1 | | 0.411 | | 2.9 | NA | 0.6 | 4.5 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Minor Road Approach LOS values are based on average delay for all lanes.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | | |
|-----------------------------|-----|-----|-------|-----|------------|-----------|------------|----------|-----|--------------|
| East: Blair Street (E) | | | | | | | | | | |
| Mov. | T1 | R2 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From E To Exit: | W | N | | | Cap. veh/h | v/c | % | % | | |
| Lane 1 | 494 | 11 | 504 | 4.0 | 1854 | 0.272 | 100 | NA | NA | |
| Approach | 494 | 11 | 504 | 4.0 | | 0.272 | | | | |
| North: Glenayr Avenue (N) | | | | | | | | | | |
| Mov. | L2 | R2 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From N To Exit: | E | W | | | Cap. veh/h | v/c | % | % | | |
| Lane 1 | 15 | 110 | 126 | 1.7 | 306 | 0.411 | 100 | NA | NA | |
| Approach | 15 | 110 | 126 | 1.7 | | 0.411 | | | | |
| West: Blair Street (W) | | | | | | | | | | |
| Mov. | L2 | T1 | Total | %HV | | Deg. Satn | Lane Util. | Prob. SL | Ov. | Ov. Lane No. |
| From W To Exit: | N | E | | | Cap. veh/h | v/c | % | % | | |
| Lane 1 | 136 | 508 | 644 | 2.8 | 1851 | 0.348 | 100 | NA | NA | |

| | | | | | |
|--------------------------|------|-----|-------|-----|-------|
| Approach | 136 | 508 | 644 | 2.8 | 0.348 |
| Total %HV Deg.Satn (v/c) | | | | | |
| Intersection | 1274 | 3.1 | 0.411 | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|--|------------------|-----------------------------|------------------------------|--------------------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Glenayr Avenue (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 Site: 101 [PM - FU - Blair Street / Mitchell Street (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Lane Use and Performance | | | | | | | | | | | | | | | |
|----------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|--------------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| South: Mitchell Street (S) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 88 | 2.4 | 88 | 2.4 | 384 | 0.230 | 100 | 13.0 | LOS A | 0.5 | 3.9 | Full | 500 | -14.5 ^{N3} | 0.0 |
| Approach | 88 | 2.4 | 88 | 2.4 | | 0.230 | | 13.0 | LOS A | 0.5 | 3.9 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 759 | 1.0 | 759 | 1.0 | 890 | 0.853 | 100 | 14.4 | LOS A | 1.4 ^{N4} | 10.0 ^{N4} | Full | 10 | -9.0 ^{N3} | 49.9 |
| Approach | 759 | 1.0 | 759 | 1.0 | | 0.853 | | 14.4 | LOS A | 1.4 | 10.0 | | | | |
| North: Mitchell Street (N) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 310 | 7.5 | 310 | 7.5 | 741 | 0.419 | 100 | 9.2 | LOS A | 1.0 | 7.3 | Full | 500 | -15.4 ^{N3} | 0.0 |
| Approach | 310 | 7.5 | 310 | 7.5 | | 0.419 | | 9.2 | LOS A | 1.0 | 7.3 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 ^d | 526 | 3.0 | 526 | 3.0 | 628 | 0.838 | 100 | 17.8 | LOS B | 4.2 | 30.2 | Full | 35 | -18.1 ^{N3} | 36.8 |
| Approach | 526 | 3.0 | 526 | 3.0 | | 0.838 | | 17.8 | LOS B | 4.2 | 30.2 | | | | |
| Intersection | 1684 | 2.9 | 1684 | 2.9 | | 0.853 | | 14.4 | LOS A | 4.2 | 30.2 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

^{N4} Average back of queue has been restricted to the available queue storage space.

| Approach Lane Flows (veh/h) | | | | | | | | | | | | | |
|-----------------------------|----|-----|-----|---|-------|-----|--|------------|---------------|--------------|----------------|--------------|--|
| South: Mitchell Street (S) | | | | | | | | | | | | | |
| Mov. From S To Exit: | L2 | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 41 | 36 | 11 | 1 | 88 | 2.4 | | 384 | 0.230 | 100 | NA | NA | |
| Approach | 41 | 36 | 11 | 1 | 88 | 2.4 | | | 0.230 | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | |
| Mov. From E To Exit: | L2 | T1 | R2 | U | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. | |
| Lane 1 | 9 | 283 | 465 | 1 | 759 | 1.0 | | 890 | 0.853 | 100 | NA | NA | |
| Approach | 9 | 283 | 465 | 1 | 759 | 1.0 | | | 0.853 | | | | |

| North: Mitchell Street (N) | | | | | | | | | | | |
|----------------------------|------|-----|-----|----|-------|-----|---------------|---------------------|--------------------|----------------------|--------------------|
| Mov. From N To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 28 | 106 | 172 | 4 | 310 | 7.5 | 741 | 0.419 | 100 | NA | NA |
| Approach | 28 | 106 | 172 | 4 | 310 | 7.5 | | 0.419 | | | |
| West: Blair Street (W) | | | | | | | | | | | |
| Mov. From W To Exit: | L2 | T1 | R2 | U | Total | %HV | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| Lane 1 | 186 | 277 | 36 | 27 | 526 | 3.0 | 628 | 0.838 | 100 | NA | NA |
| Approach | 186 | 277 | 36 | 27 | 526 | 3.0 | | 0.838 | | | |
| Total %HV Deg.Satn (v/c) | | | | | | | | | | | |
| Intersection | 1684 | 2.9 | | | 0.853 | | | | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|---|------------------------|------------------------------|---------------------------------------|--------------------------------|------------------------|-----------------------------|-------------------------------------|---------------------|----------------------|-----------------------|--|
| | Exit Lane Number | Short Lane Length m | Percent Opng in Lane % veh/h | Opposing Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Capacity Flow Rate veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec | |
| South Exit: Mitchell Street (S) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| East Exit: Blair Street (E) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| North Exit: Mitchell Street (N) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |
| West Exit: Blair Street (W) Merge Type: Not Applied | | | | | | | | | | | |
| Full Length Lane | 1 | Merge Analysis not applied. | | | | | | | | | |

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LANE SUMMARY

 Site: 101 [PM - Blair East of Mitchell (Site Folder: General)]

 Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]

New Site

Site Category: (None)

Pedestrian Crossing (Unsignalised)

| Lane Use and Performance | | | | | | | | | | | | | | | |
|--------------------------|-----------------|----------|-----------------|----------|-------|-----------|------------|-------------|------------------|-----------------------|------------|-------------|-------------|---------------------|--------------|
| | DEMAND FLOWS | | ARRIVAL FLOWS | | Cap. | Deg. Satn | Lane Util. | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Lane Config | Lane Length | Cap. Adj. | Prob. Block. |
| | [Total veh/h] | [HV %] | [Total veh/h] | [HV %] | veh/h | v/c | % | sec | | [Veh] | [Dist m] | | m | % | % |
| East: Blair Street (E) | | | | | | | | | | | | | | | |
| Lane 1 | 341 | 2.2 | 341 | 2.2 | 367 | 0.929 | 100 | 26.5 | LOS B | 4.7 | 33.8 | Full | 500 | -49.9 ^{N3} | 0.0 |
| Approach | 341 | 2.2 | 341 | 2.2 | | 0.929 | | 26.5 | LOS B | 4.7 | 33.8 | | | | |
| West: Blair Street (W) | | | | | | | | | | | | | | | |
| Lane 1 | 316 | 2.3 | 316 | 2.3 | 733 | 0.432 | 100 | 3.5 | LOS A | 1.0 | 7.5 | Full | 10 | 0.0 | 28.3 |
| Approach | 316 | 2.3 | 316 | 2.3 | | 0.432 | | 3.5 | LOS A | 1.0 | 7.5 | | | | |
| Intersection | 657 | 2.2 | 657 | 2.2 | | 0.929 | | 15.4 | NA | 4.7 | 33.8 | | | | |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: Akçelik M1.

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^{N3} Capacity Adjustment due to downstream lane blockage determined by the program.

| Approach Lane Flows (veh/h) | | | | | | | | | |
|-----------------------------|-----|-------|-----|--|------------|---------------|--------------|----------------|--------------|
| East: Blair Street (E) | | | | | | | | | |
| Mov. From E To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | W | | | | | | | | |
| Lane 1 | 341 | 341 | 2.2 | | 367 | 0.929 | 100 | NA | NA |
| Approach | 341 | 341 | 2.2 | | | 0.929 | | | |
| West: Blair Street (W) | | | | | | | | | |
| Mov. From W To Exit: | T1 | Total | %HV | | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Prob. SL Ov. % | Ov. Lane No. |
| | E | | | | | | | | |
| Lane 1 | 316 | 316 | 2.3 | | 733 | 0.432 | 100 | NA | NA |
| Approach | 316 | 316 | 2.3 | | | 0.432 | | | |
| Total %HV Deg. Satn (v/c) | | | | | | | | | |
| Intersection | 657 | 2.2 | | | | 0.929 | | | |

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

| Merge Analysis | | | | | | | | | | | |
|------------------|---------------------|------------------------|--------------------------|-----------------|------------------|-----------------------|----------------------|----------------|---------------|----------------|-----------------|
| Exit Lane Number | Short Lane Length m | Percent Opng in Lane % | Opposing Flow Rate veh/h | Flow Rate pcu/h | Critical Gap sec | Follow-up Headway sec | Lane Flow Rate veh/h | Capacity veh/h | Deg. Satn v/c | Min. Delay sec | Merge Delay sec |

| | | |
|---|---|-----------------------------|
| East Exit: Blair Street (E) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |
| West Exit: Blair Street (W) Merge Type: Not Applied | | |
| Full Length Lane | 1 | Merge Analysis not applied. |

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**ANNEXURE E: CORRESPONDENCE WITH TFNSW AND
STA
(1 SHEET)**



Tom Steal <tom@mclarentraffic.com.au>

School Buses - Bondi

James Forsyth <James_Forsyth@sta.nsw.gov.au>

16 September 2020 at 13:14

To: Tom Steal <tom@mclarentraffic.com.au>

Cc: Bushara Gidies <Bushara_Gidies@sta.nsw.gov.au>, Brendan Rabbitt <Brendan_Rabbitt@sta.nsw.gov.au>

Hi Tom,

Please accept my apologies for the delay in getting back to you. Thank you for your follow up enquiry and patience whilst we made further enquiries to TfNSW.

The NSW School Student Travel Scheme (SSTS) is the most generous in Australia and allows students to travel on the public transport network at no cost. For parents and students choosing schools outside of local area of residence it is not always possible to provide dedicated school services. Student using the public transport network may need to interchange and travel times will be dependent on the choice of school.

In the case of Reddam House, the school is well served by the high-frequency Route 379. Utilisation of this bus route provides flexibility for students attending school at different times should a staggered school day for different year groups be implemented, as well as providing travel options for students participating in extra-curricular activities. All bus routes are regularly monitored to ensure the travel needs of our customers are being met. Should future growth in patronage on Route 379 warrant the operation of additional trips, this would benefit not only school students but the wider travelling community.

As previously mentioned each year in October, State Transit sends out a request to all schools we provide services to, requesting information regarding enrolment numbers, bell times and other travel details. As the responses received are passed on to TfNSW and used to assist with planning of future services, it would be beneficial if the school includes details relating to this proposal in their response at this time.

Regards,

James Forsyth
Customer Operations Manager
Eastern Suburbs I State Transit
P: 02 9582 7630

[1 Bumborah Point Road, Port Botany](#)

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[Quoted text hidden]



7 October 2021

Reference: 210231.03FA

Reddam House School
c/ - Fulton Trotter
PO BOX 1669
Bondi Junction NSW 1355
Attention: John Ward

**SUPPLEMENTARY TRAFFIC AND PARKING ADVICE FOR
THE PROPOSED REDDAM HOUSE SENIOR SCHOOL
AT 66-68 OAKLEY ROAD, NORTH BONDI (INCORPORATING 60 BLAIR STREET)**

Dear John,

Reference is made to your request to provide supplementary traffic and parking advice with regards to the proposed expansion of the Reddam House Senior School at 66-68 Oakley Road, North Bondi (Incorporating 60 Blair Street). The information in this letter is provided to address the comments provided by Woollahra Council in their letter dated 23 August 2021 for DA Number 1023/2021/HA. This letter should be read as a supplement to the Traffic and Parking Impact Assessment Report by McLaren Traffic Engineering dated 18 May 2021 (MTE Report).

Clarification of the travel mode survey undertaken has been requested and is a recurring subject in Council's comments; additional detail with regards to the travel mode surveys has been provided in **Section 1**. The comments made by Council relevant to traffic and parking are reproduced in *italics* and responded to in the following Sections.

1 Travel Mode Surveys

The travel mode surveys undertaken in mid-March 2020 (most responses from 13 March 2020) pre-date restriction and lockdowns associated with the COVID-19 pandemic and a reasonable indicator of the typical transport preferences of students. The Reddam House school operates two senior campuses being:

- A. The Junior Campus located at 70 Edgecliff Road, Woollahra, and;
- B. The Senior Campus located at 56 Mitchell Street, Bondi (the subject of the DA).

The locations of the two campuses are depicted on a map in **Figure 1**.

The Junior Campus includes students in Years 7 to 9 and the Senior Campus Years 10 to 12. The surveys included students over both campuses.

The travel mode choices as indicated in the surveys have been summarised in terms of year groups (noting that Years 7 to 9 were located at the Junior Campus and Years 10 to 12 at the Senior Campus) as shown in **Table 1** for the Junior Campus and **Table 2** for the Senior Campus.

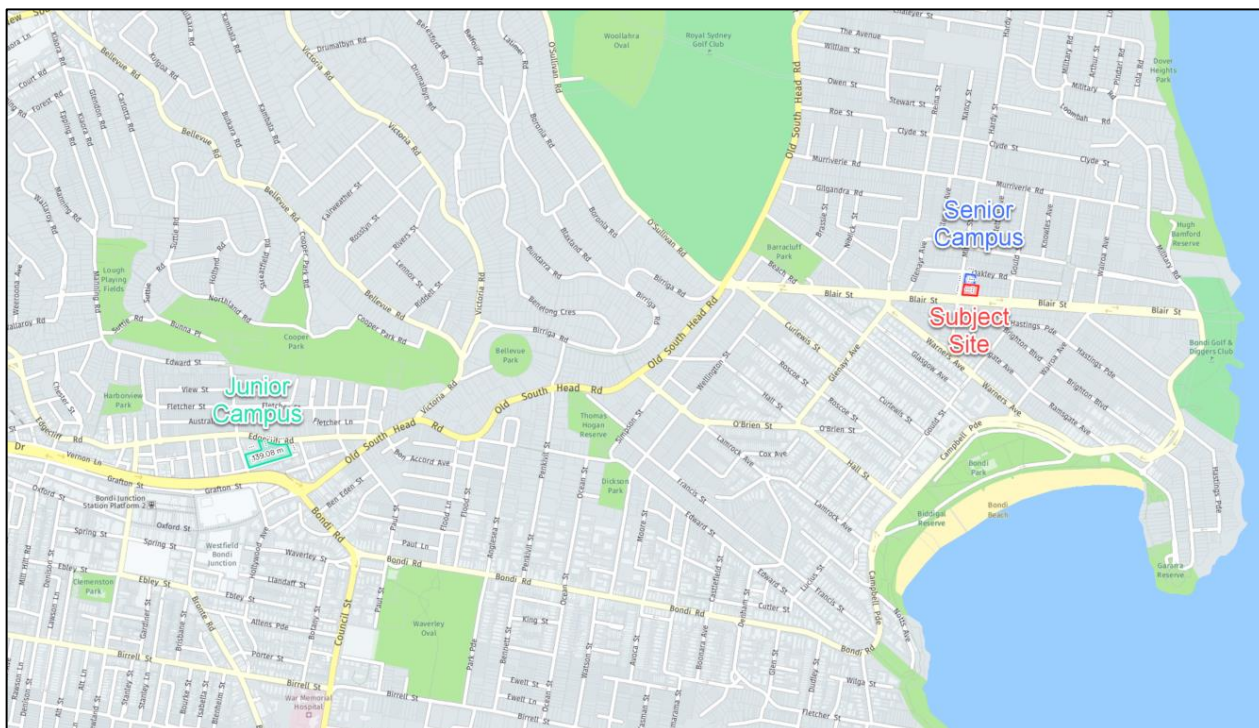


FIGURE 1: MAP OF CAMPUS LOCATIONS

TABLE 1: TRAVEL MODE CHOICES – JUNIOR CAMPUS

| Travel Mode | Family Car (as passenger) | Friend's Car (as passenger) | Public Bus | Train and Bus | Train | Walking | Bicycle | School Operated Bus |
|---------------------------|---------------------------|-----------------------------|------------|---------------|------------|------------|----------|---------------------|
| Travel to School | | | | | | | | |
| Year 7 | 34 (55.7%) | 1 (1.6%) | 13 (21.3%) | 2 (3.3%) | 2 (3.3%) | 6 (9.8%) | 2 (3.3%) | 1 (1.6%) |
| Year 8 | 16 (21.3%) | 0 (0.0%) | 34 (45.3%) | 3 (4.0%) | 10 (13.3%) | 10 (13.3%) | 1 (1.3%) | 1 (1.3%) |
| Year 9 | 17 (24.3%) | 0 (0.0%) | 34 (48.6%) | 3 (4.3%) | 6 (8.6%) | 9 (12.9%) | 1 (1.4%) | 0 (0.0%) |
| Average | 16% | 0% | 20% | 2% | 4% | 6% | 1% | 0% |
| Travel from School | | | | | | | | |
| Year 7 | 24 (39.3%) | 1 (1.6%) | 21 (34.4%) | 2 (3.3%) | 3 (4.9%) | 7 (11.5%) | 2 (3.3%) | 1 (1.6%) |
| Year 8 | 14 (18.7%) | 0 (0.0%) | 39 (52.0%) | 5 (6.7%) | 7 (9.3%) | 9 (12.0%) | 1 (1.3%) | 0 (0.0%) |
| Year 9 | 10 (14.3%) | 0 (0.0%) | 40 (57.1%) | 3 (4.3%) | 5 (7.1%) | 11 (15.7%) | 1 (1.4%) | 0 (0.0%) |
| Average | 23% | 0% | 49% | 5% | 7% | 13% | 2% | 0% |

Note: Number of responses provided with the proportion in brackets.

TABLE 2: TRAVEL MODE CHOICES – SENIOR CAMPUS

| Travel Mode | Family Car (as passenger) | Friend's Car (as passenger) | Public Bus | Train and Bus | Train | Walking | Bicycle | School Operated Bus | Own Car as Driver | With Staff Member | Motor bike |
|---------------------------|---------------------------|-----------------------------|---------------|---------------|-------------|---------------|-------------|---------------------|-------------------|-------------------|-------------|
| Travel to School | | | | | | | | | | | |
| Year 10 | 7 (11.1%) | 0 (0.0%) | 32 (50.8%) | 5 (7.9%) | 3 (4.8%) | 15 (23.8%) | 0 (0.0%) | 0 (0.0%) | 1 (1.6%) | 0 (0.0%) | 0 (0.0%) |
| Year 11 | 9 (12.3%) | 0 (0.0%) | 44 (60.3%) | 5 (6.8%) | 2 (2.7%) | 12 (16.4%) | 0 (0.0%) | 0 (0.0%) | 1 (1.4%) | 0 (0.0%) | 0 (0.0%) |
| Year 12 | 5 (6.2%) | 2 (2.5%) | 31 (38.3%) | 7 (8.6%) | 1 (1.2%) | 20 (24.7%) | 6 (7.4%) | 1 (1.2%) | 5 (6.2%) | 2 (2.5%) | 1 (1.2%) |
| Average | 10% | 1% | 49% | 8% | 3% | 22% | 3% | 0% | 3% | 1% | 0% |
| Travel from School | | | | | | | | | | | |
| Year 10 | 3 (4.8%) | 1 (1.6%) | 35 (55.6%) | 3 (4.8%) | 4 (6.3%) | 13 (20.6%) | 0 (0.0%) | 4 (6.3%) | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) |
| Year 11 | 3 (4.1%) | 0 (0.0%) | 51 (69.9%) | 4 (5.5%) | 2 (2.7%) | 9 (12.3%) | 1 (1.4%) | 2 (2.7%) | 1 (1.4%) | 0 (0.0%) | 0 (0.0%) |
| Year 12 | 3 (3.7%) | 3 (3.7%) | 35 (43.2%) | 6 (7.4%) | 1 (1.2%) | 19 (23.5%) | 5 (6.2%) | 1 (1.2%) | 5 (6.2%) | 2 (2.5%) | 1 (1.2%) |
| Average | 4% | 2% | 56% | 6% | 3% | 19% | 3% | 3% | 3% | 1% | 0% |

Note: Number of responses provided with the proportion in brackets.

As shown, the students at the Senior Campus were more likely to use travel modes other than private cars than the students at the Junior Campus. These results are further summarised in **Table 3**.

The results indicate that:

- Year 7 students are significantly more likely to travel to and from school in a private vehicle than any other year group.
- Year 12 students were noticeably more likely to use active transport to travel to and from school than other year group.
- Some Year 12 students drive their own vehicles to and from school increasing the private car usage in that cohort.
- Despite the comparatively poor public transport accessibility, students at the Senior Campus were more likely to travel by mass and active transport than those at the Junior Campus. It is likely that this is a function of the greater age and independence of the students.

TABLE 3: SUMMARISED TRAVEL MODE CHOICES BY YEAR GROUP

| Travel To School | | | |
|--------------------|-------------|-------------------------------|------------------|
| Year Group | Private Car | Public/Private Mass Transport | Active Transport |
| Year 7 | 57% | 30% | 13% |
| Year 8 | 21% | 64% | 15% |
| Year 9 | 24% | 61% | 14% |
| Year 10 | 13% | 63% | 24% |
| Year 11 | 14% | 70% | 16% |
| Year 12 | 19% | 49% | 32% |
| Travel From School | | | |
| Year 7 | 41% | 44% | 15% |
| Year 8 | 19% | 68% | 13% |
| Year 9 | 14% | 69% | 17% |
| Year 10 | 6% | 73% | 21% |
| Year 11 | 5% | 81% | 14% |
| Year 12 | 17% | 53% | 30% |

1.1 Derivation of Traffic Generation

Using the transport mode survey results the private car traffic generation of each year group can be estimated based on the following:

- The “Family Car as Passenger” mode results in one trip approaching and one trip exiting the site in both AM and PM peaks;
- The “Friend’s Car as Passenger” and “With Staff Member” modes do not add any additional trips, as these would be accounted for already.
- The “Own Car as Driver” and “Motorbike” travel mode results in one trip approaching the site in the AM peak and one trip departing the site in the PM peak.
- For students in Year 10 and Year 11, the “Own Car as Driver” mode is likely associated with the student learning to drive. For these year groups this travel mode is associated with one trip approaching and one trip exiting the site in both AM and PM peaks.
- No consideration has been given to the incidence of siblings travelling together in the family car, which is expected to have occurred but was not counted.

The private car generation of a student in each year group based on the above assumptions is summarised in **Table 4**.

TABLE 4: ESTIMATED TRIPS PER STUDENT BY YEAR GROUP

| Year Group | AM Peak | | | PM Peak | | |
|------------|------------------------|----------------------|-------------|------------------------|----------------------|-------------|
| | Trips Approaching Site | Trips Departing Site | Total Trips | Trips Approaching Site | Trips Departing Site | Total Trips |
| Year 7 | 0.56 | 0.56 | 1.11 | 0.39 | 0.39 | 0.79 |
| Year 8 | 0.21 | 0.21 | 0.43 | 0.19 | 0.19 | 0.37 |
| Year 9 | 0.24 | 0.24 | 0.49 | 0.14 | 0.14 | 0.29 |
| Year 10 | 0.13 | 0.13 | 0.25 | 0.05 | 0.05 | 0.10 |
| Year 11 | 0.14 | 0.14 | 0.27 | 0.05 | 0.05 | 0.11 |
| Year 12 | 0.14 | 0.06 | 0.20 | 0.04 | 0.11 | 0.15 |
| Average | 0.24 | 0.22 | 0.46 | 0.14 | 0.16 | 0.30 |

For reference, the average traffic generation rates used in the MTE Report are compared to the above averages in **Table 5**. It is noted that the proposed application will add 295 Year 8 and Year 9 students to the Senior Campus and that the average traffic generation of Year 8 and Year 9 students is shown in addition to the overall average. This detail was not clear when the MTE Report was finalised.

TABLE 5: ESTIMATED TRAFFIC GENERATION COMPARISON

| Source | AM Peak | | | PM Peak | | |
|-----------------------|------------------------|----------------------|-------------|------------------------|----------------------|-------------|
| | Trips Approaching Site | Trips Departing Site | Total Trips | Trips Approaching Site | Trips Departing Site | Total Trips |
| MTE Report | 0.24 | 0.21 | 0.45 | 0.13 | 0.16 | 0.29 |
| Average from Table 4 | 0.24 | 0.22 | 0.46 | 0.14 | 0.16 | 0.30 |
| Years 8 and 9 Average | 0.23 | 0.23 | 0.46 | 0.17 | 0.17 | 0.34 |

As shown, the traffic generation rates derived are consistent, noting that rounding methods used to derive the values in the MTE Report resulted in a differential of 0.01 trips per student in both peak hours.

The proposed additional 295 students will be in Years 8 and 9, which have an average traffic equal to the average in the AM peak and 13% higher than the average in the PM peak. Given that the average alternative transport rate at the Senior Campus is higher than that at the Junior Campus, it has been assumed that students in Year 8 and Year 9 would retain the same traffic generation rate as in the survey.

In view of the above, a revised traffic generation estimate for the proposal is that the additional 295 students will result in an additional 136 trips in the AM peak (68 IN/68 OUT) and an additional 100 trips in the PM peak (50 IN/50 OUT). The AM peak volumes are similar to those modelled in the MTE Report. The PM peak volumes represent an increase of 15 trips compared to those modelled in the MTE Report.

The PM peak modelling has been updated to reflect the slightly higher traffic volumes and the results demonstrate that there are no significant changes compared to those outlined in the MTE Report. The SIDRA reports associated with the updated PM peak modelling are provided in **Annexure A** for reference.

2 Traffic Generation

2.1 Potential Impact on Residential Amenity

(a) Traffic Generation – Comments and Requirements

- *The proposed development will increase the student number the student number by 295 and staff by 15. Students and staff travel mode survey results are utilised to estimate the additional vehicular traffic generated from the proposed development.*
- *The applicants traffic consultant has advised that the travel mode surveys included students in year 7 to 12.*
- *The proposed increase of students and staff number will generate about 75 additional inbound trips and 62 additional outbound trips in the morning and 39 inbound trips and 52 outbound trips in the afternoon.*
- *The impact on intersection operation is not significant. The amenity impact of increased traffic flows on the surrounding residential street, however, has not been quantified. An assessment against the criteria in Section 4.3 and Table 4.6 of the RTA Guide to Traffic Generating Developments is required.*

Seven-day Automatic Traffic Count (ATC) surveys were undertaken on Glenayr Avenue (between Blair Street and Oakley Road) in March 2021 to determine the average peak hour volumes that this road experienced. Given that Glenayr Avenue is fed by/feeds O'Donnell Street and Oakley Road, it is reasonable to assume that traffic volumes on Glenayr Road exceed those on either O'Donnell or Oakley. Similarly, seven-day ATC surveys were undertaken on Mitchell Avenue just south of Murrivier Road to determine average peak hour volumes. The results of these surveys are summarised in **Table 6**.

TABLE 6: EXISTING TRAFFIC VOLUMES ON LOCAL ROADS

| Road | Peak Hour | Northbound Average Peak Volume | Southbound Average Peak Volume | Combined Average Peak Volume |
|-----------------|-----------|--------------------------------------|--------------------------------------|------------------------------------|
| Glenayr Street | AM | 109 | 129 | 237 |
| | PM | 131 | 99 | 211 |
| Mitchell Street | AM | 168 | 285 | 425 |
| | PM | 221 | 228 | 416 |

The traffic generation assumed in the MTE Report will result in the following additional volumes as summarised in **Table 7**.

TABLE 7: EXISTING AND FUTURE TRAFFIC VOLUMES ON LOCAL ROADS

| Road | Peak Hour | Northbound Average Peak Volume | Southbound Average Peak Volume | Combined Average Peak Volume |
|---------------------------|-----------|--------------------------------------|--------------------------------------|------------------------------------|
| Existing Volumes | | | | |
| Glenayr Street | AM | 109 | 129 | 237 |
| | PM | 131 | 99 | 211 |
| Mitchell Street | AM | 168 | 285 | 425 |
| | PM | 221 | 228 | 416 |
| Additional Volumes | | | | |
| Glenayr Street | AM | 0 | 41 | 41 |
| | PM | 0 | 30 | 30 |
| Mitchell Street | AM | 14 | 14 | 28 |
| | PM | 10 | 10 | 20 |
| Future Volumes | | | | |
| Glenayr Street | AM | 109 | 170 | 278 |
| | PM | 131 | 129 | 241 |
| Mitchell Street | AM | 182 | 299 | 453 |
| | PM | 231 | 238 | 436 |

The RTA Guide to Traffic Generating Developments suggests maximum recommended road volumes for the maintenance of residential amenity in Table 4.6 which is reproduced as **Figure 2**. With reference to these recommended environmental goal and maximum volumes it is evident that:

- Glenayr Street is presently experiencing volumes between the 200veh/hr environmental goal and 300veh/hr maximum in both the AM and PM peaks and that this will remain the case post-development.
- Mitchell Street is presently experiencing volumes between 300veh/hr and 500veh/hr in both the AM and the PM peak hours and this will remain the case post-development.

In light of the above, the additional traffic volumes will have no effect on the roads surrounding the site in terms of residential amenity.

Table 4.6
Environmental capacity performance standards on residential streets

| Road class | Road type | Maximum Speed (km/hr) | Maximum peak hour volume (veh/hr) |
|------------|------------|-----------------------|---------------------------------------|
| Local | Access way | 25 | 100 |
| | Street | 40 | 200 environmental goal 300 maximum |
| Collector | Street | 50 | 300 environmental goal |
| | | | 500 maximum |

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

FIGURE 2: ENVIRONMENTAL CAPACITY OF LOCAL ROADS RTA GUIDE TO TRAFFIC GENERATING DEVELOPMENTS 2002

2.2 Additional Trip Volumes Resulting from Additional Students

- The proposal will have a significant increase in drop off and pick up activities. There will be about 61 extra student drop offs in the morning (see table below).*

| | Currently | Extra | Total |
|--|------------------|--------------|--------------|
| <i>Inbound students AM dropped off</i> | 94 | 61 | 155 |
| <i>Outbound students PM picked up</i> | 58 | 38 | 96 |

- Converting the student numbers to cars is not possible as the survey did not account for this. Additional information is required for a more accurate estimate of cars.*

An increased level of detail regarding the surveys and the derivation of a traffic generation rate has been provided in **Section 1**.

2.3 Impacts of Drop-Off and Pick-Up Activities

- The traffic generation from the proposed development will lead to potential traffic congestion in the surrounding streets if inadequate pick up / drop off facilities are provided.*

The length of kerb needed for drop-off and pick-up activities associated with the additional students can be estimated using multi-channel queueing theory. The following assumptions have been used:

- In the AM peak, the dwell time of vehicles is likely to be up to two minutes to allow students to exit the car and collect their bag from the boot.
- In the PM peak, an increased dwell time of five minutes should be considered to allow for any time spent waiting for the student to reach the vehicle. While it is noted that the proposed additional parking restrictions only permit stopping for up to two minutes, five minutes has been used as a sensitivity test.

The number of car spaces required to accommodate the expected queue for each peak hour is provided in **Table 8**.

TABLE 8: QUEUEING ANALYSIS RESULTS

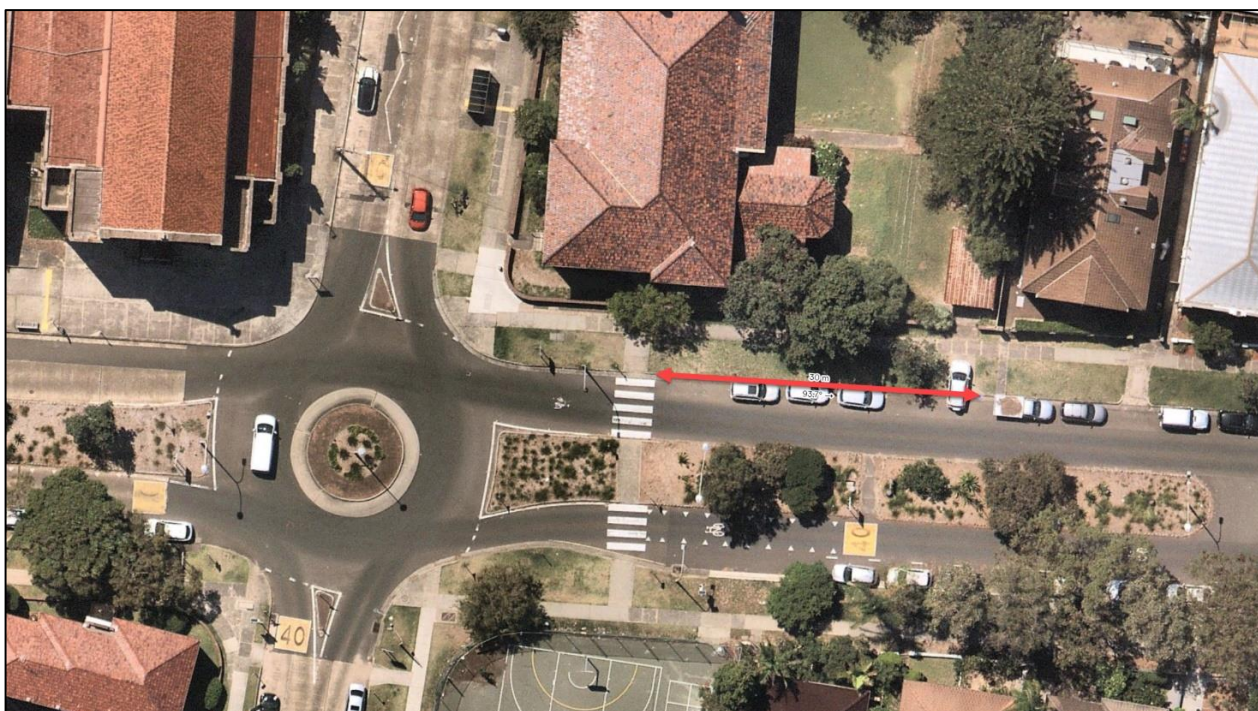
| Peak Hour | Dwell Time (s) | Approaching Vehicle Volume (veh/hr) | Percentile Queue Length (veh) | | | | | | | |
|-----------|----------------|-------------------------------------|-------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | | | 50 th | 60 th | 70 th | 80 th | 85 th | 90 th | 95 th | 98 th |
| AM | 120 | 68 | 3 | 4 | 4 | 4 | 4 | 5 | 5 | 6 |
| PM | 300 | 50 | 6 | 6 | 6 | 7 | 7 | 7 | 8 | 9 |

As shown, an additional 9 spaces would provide sufficient capacity for the additional drop-off and pick-up activities associated with the development.

The MTE Report included a proposal to impose additional restrictions on Mitchell Street, adding 22m of drop-off and pick-up facilities which provide for four spaces. An additional 30m can be provided along the school's frontage to Blair Street as indicated in **Figure 3** to provide for five spaces.

It is noted that the 10m adjacent to the zebra crossing is presently signposted "No Stopping". The intent of "No Stopping" restrictions in proximity to crossings is to prevent the presence of vehicles from blocking mutual sight lines between vehicles and pedestrians. Considering that Blair Street is a divided carriageway in this location and that pedestrians only need look to the west when crossing the first stage of the subject "zebra" crossing, the use of this zone for drop-off and pick-up movements is acceptable and will not adversely effect safety along Blair Street.

A detailed plan of the proposed street signage is provided in **Annexure B** for reference.



↔ Additional "No Parking 7:30 AM – 9:00 AM & 2:30 PM – 4:00 PM" Zone

FIGURE 3: PROPOSED ADDITIONAL DROP-OFF AND PICK-UP ZONE

3 **Parking**

3.1 **Increased Parking Demand and Adequacy of Facilities**

(b) Parking – Comments and Requirements

- *The travel mode survey results are used to estimate the parking demands of the proposed development.*

| Travel Modes | Percentage | Quantity | Additional Car Parking Requirements |
|-----------------------------|------------|----------|-------------------------------------|
| Student (Own car as driver) | 1.7% | 295 | 5 |
| Staff (Own car as driver) | 51.4% | 15 | 8 |
| Total | | | 13 |

- *The proposed development will require an additional 13 car parking spaces if it is to accommodate students and staff parking requirements. The existing site does not have on-site parking facilities.*
- *The provision of off-street car parking is not sufficient to accommodate the proposed use of the school. Students and staff who drive to school may need to park their cars further away from school in the residential areas, thus impacting on residential parking in the surrounding areas.*

The additional 295 students proposed will not include any Year 12 students and as a result there will be no increase to the number of students using their own cars to travel to and from school. It is also noted that the provision of parking for students would encourage a greater number of students to drive, which is a poor transport planning outcome.

3.2 **Management of Shuttle Bus to Satellite Parking**

- *It is proposed to lease 10 staff parking spaces in the Pacific Bondi Car Park at 180 Campbell Parade. This car park is approximately 600 metres walking distance from the subject site. Shuttle bus service will be provided to transport staff between the school and the car park in the morning and afternoon.*
- *An operational plan of management is required demonstrating the operations of the shuttle bus, frequency and the locations for pick up and drop off at both sites.*

An Operational Transport Management Plan will be provided including the details requested.

3.3 **Off-Street Parking Survey**

- *An on-street parking occupancy survey of streets within 100 metre distance from the site on a weekday is required. This survey is to be undertaken when lockdown restrictions are lifted and students are back to campus.*

Due to ongoing COVID-19 restrictions, parking surveys are not possible. To provide some indication of the car parking occupancy in the streets surrounding the school, aerial imagery from Nearmap on five different school days before the commencement of lockdowns has been examined. The roads and on-street parking zones included in the survey are depicted in **Figure 4** and the parking occupancy rates observed are summarised in **Table 9**. As shown, during school times a high rate of occupancy of on-street parking spaces exists, with between 14% to 19% of spaces available.

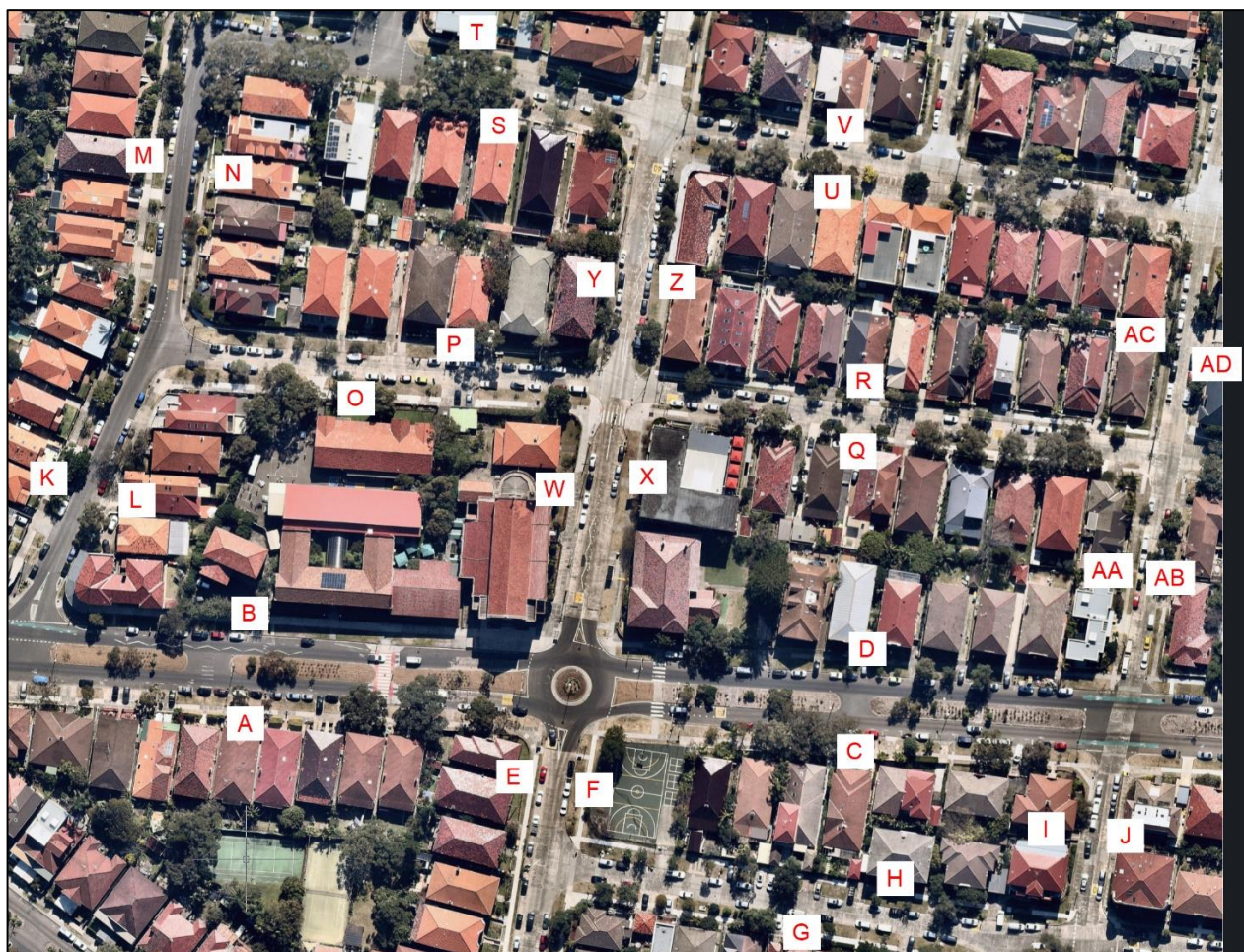


FIGURE 4: PARKING ZONES CONSIDERED

TABLE 9: RESULTS OF ON-STREET PARKING ASSESSMENT

| Parking Zone | Parking Capacity (as per AS2890.5) | Wed 11/04/18 12:55 PM | Thu 23/08/18 11:18 AM | Tue 23/10/18 11:31 AM | Mon 04/03/19 10:57 AM | Mon 02/03/20 12:22 PM |
|--------------|------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| A | 16 | 0% | 6% | 25% | 13% | 31% |
| B | 12 | 17% | 50% | 42% | 33% | 33% |
| C | 14 | 21% | 7% | 14% | 14% | 57% |
| D | 15 | 7% | 7% | 13% | 13% | 7% |
| E | 8 | 25% | 38% | 75% | 38% | 50% |
| F | 3 | 0% | 0% | 33% | 0% | 33% |
| G | 17 | 18% | 29% | 0% | 24% | 24% |
| H | 15 | 40% | 13% | 0% | 27% | 0% |
| I | 6 | 0% | 17% | 0% | 17% | 0% |
| J | 5 | 0% | 0% | 0% | 0% | 0% |
| K | 11 | 18% | 18% | 0% | 9% | 18% |
| L | 6 | 0% | 0% | 17% | 0% | 0% |

| Parking Zone | Parking Capacity (as per AS2890.5) | Wed 11/04/18 12:55 PM | Thu 23/08/18 11:18 AM | Tue 23/10/18 11:31 AM | Mon 04/03/19 10:57 AM | Mon 02/03/20 12:22 PM |
|-----------------|------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| M | 19 | 21% | 32% | 16% | 0% | 11% |
| N | 19 | 16% | 32% | 26% | 26% | 32% |
| O | 13 | 23% | 0% | 0% | 0% | 0% |
| P | 16 | 0% | 19% | 13% | 6% | 6% |
| Q | 16 | 13% | 31% | 25% | 25% | 19% |
| R | 16 | 6% | 38% | 0% | 0% | 0% |
| S | 9 | 33% | 44% | 56% | 33% | 56% |
| T | 9 | 22% | 22% | 56% | 22% | 33% |
| U | 7 | 14% | 43% | 29% | 29% | 14% |
| V | 17 | 18% | 24% | 18% | 12% | 24% |
| W | 5 | 0% | 20% | 20% | 20% | 20% |
| X | 3 | 0% | 0% | 0% | 0% | 33% |
| Y | 5 | 20% | 0% | 0% | 20% | 20% |
| Z | 9 | 22% | 0% | 0% | 11% | 0% |
| AA | 8 | 25% | 13% | 38% | 25% | 25% |
| AB | 7 | 0% | 0% | 14% | 14% | 0% |
| AC | 8 | 25% | 13% | 13% | 0% | 0% |
| AD | 7 | 0% | 14% | 43% | 0% | 14% |
| Vacant Spaces % | - | 14% | 19% | 17% | 14% | 18% |

4 Drop-Off and Pick-Up Facilities

(c) Pick-up and Drop-off – Comments and Requirements

- *There is no existing dedicated drop off and pick up zone in site or on streets near the school. There is an 8 metre long 'P15 minutes, 8:30am-3:20pm, School Days Only' parking zone located in front of the existing school on the east side of Mitchell Street. This parking zone was installed to cater the school shuttle buses.*
- *The applicant has proposed to convert unrestricted parking to 'No Parking 7:30 AM – 9:00 AM and 2:30 PM – 4:30 PM School Days Only' restrictions to the western side of Mitchell Street, between the existing 'No Parking, Wedding & Funeral Vehicles Excepted' zone and Oakley Road. This section is about 24 metres long (4 car spaces).*
- *The proposed development will result in an additional 61 students being dropped off in the morning. The proposed 24 metre long kiss and ride area is not sufficient to cater for the existing and additional students. Additional pick up and drop off zones near the site are to be considered. Potential locations could be considered include but not limited to:*

- Existing 11.5 metre unrestricted parking zone adjoining the northern end of the 'P15Minute 8:30 AM – 3:30 PM School Days Only' zone in front of the site in Mitchell Street.
- Existing unrestricted parking zone along school frontage in Oakley Road.
- Existing unrestricted parking zone in Blair Street along the frontage of 60 Blair Street.

Note: Any proposal of on-street pick up and drop off zones will need to be consulted with surrounding property owners and residents, and reviewed by the Waverley Traffic Committee prior to determination by Council.

An additional drop-off and pick-up zone has been proposed, as outlined in **Section 2.3**.

5 Public Transport

5.1 Adequacy of Public Transport Services

(d) Public Transportation – Comments and Requirements

- *The travel mode surveys show that 56.7% of the students catch public transport to school in the morning and 63.7% of the students catch public transport from school in the afternoon.*
- *There will be about additional 167 students in the morning and 188 students in the afternoon that need to be accommodated by public transport. This may require expansion of the existing public services to and from the school, especially the number of buses.*

Transport for New South Wales (TfNSW) and the local bus operator State Transit Authority (STA) were contacted for comment on whether a school bus service was needed to provide sufficient services for the proposed increase in student numbers. It was advised that the existing Route 379 bus service was sufficient to serve the needs of the school and that the frequency of services along this route would be increased if needed to cater for an increased level of students.

5.2 Supervision of Students Waiting for Buses

- *A plan management demonstrating how student will be guided by staff while awaiting and catching the buses after school is required to be submitted.*

An Operational Transport Management Plan will be provided including the details requested.

5.3 School Bus Services

- *Council's Traffic and Development Engineers met with officers from the State Transit Authority on 13 August 2021 to discuss the development application. The following comments arising from that meeting are as follows:*
 - *The 379 service is the only general public bus service providing trips to and from the Reddam House senior campus. It is a high frequency service. It operates every 5 to 10 minutes in the morning and afternoon peaks.*
 - *There is a single school bus service from Watsons Bay (738e service – 1 in AM and 2 in PM). It services both campuses (senior and junior).*

- *It is understood that the school has approached State Transit in the past about providing more school bus services. State Transit do not determine whether a school bus service is established. This has to be assessed by Transport for NSW. The provision of additional school bus services by Transport for NSW will require the school to provide:*
 1. *Information on the number of student OPAL bus pass holders.*
 2. *Information on which students are travelling to the school by public transport and from where.*
- *OPAL card data alone cannot provide this information as students tend to not swipe their cards unless inspectors appear. This is due to a variety of reasons. The most common is that they are not travelling directly between home and school. The student OPAL cards are only allowed to be used for these trips*

Transport for New South Wales (TfNSW) and the local bus operator State Transit Authority (STA) were contacted for comment on whether a school bus service was needed to provide sufficient services for the proposed increase in student numbers. It was advised that the existing Route 379 bus service was sufficient to serve the needs of the school and that the frequency of services along this route would be increased if needed to cater for an increased level of students. As such, it is not proposed that a dedicated additional school service be established.

5.4 Detail of Travel Mode Surveys

- *Council's Traffic and Development Engineers require a breakdown of travel modes identifying:*
 1. *Year 7-8 and year 9-12 students to be reported separately.*
 2. *Which campus the students arrived at and left on the survey day.*
 3. *The number of students who came or left by school bus by campus.*
 4. *The number of students who came or left by the private school bus (if any).*

The travel mode surveys have been discussed in detail in **Section 1**.

5.5 Shuttle Bus Operations

- *Council's Traffic and Development Engineers also require information on the frequency/timetable of the private school shuttle bus services between the campuses today and with the DA proposal.*

An Operational Transport Management Plan will be provided including the details requested.

5.6 Operational Transport Management Plan (OTMP)

- *An operational transport management plan (OTMP) is required to encourage more usage of public transport to minimise the impacts of additional pick up/ drop off activities. The objective should be to achieve a net zero increase in car trips to and from the senior campus in the morning and afternoon. This was also required for the St Catherine's college expansion which required the applicant to prepare an OTMP. The plan must identify mode share targets for the proposed travel strategies **that target a reduction in private vehicle trips and ensure no net increase in vehicle trips.***

An Operational Transport Plan of Management will be provided including the details requested.

6 Loading and Servicing

(e) Loading Bay – Comments and Requirements

- *Waste collection arrangement will remain the same as the existing for the Reddam House school. Bins will be collected from the kerb side of Oakley Street in front of the site. This arrangement is acceptable in terms of traffic impacts.*
- *There will be up to 3 servicing trips per week presently by light commercial vehicles. It is proposed to utilise the existing ¼ P parking zone on the eastern side of Mitchell Street to accommodate service vehicle parking. Times for deliveries are to be identified in a Management Plan.*

Noted, no response required.

7 Documentation/Information Requested

7.1 Travel Mode Survey Detail

- *The survey of students cannot be easily converted to cars as the survey did not account for this. Additional information is required for a more accurate estimate of cars.*

The travel mode surveys have been discussed in detail in **Section 1**.

7.2 On-Street Parking Survey

- *An on-street parking occupancy survey of streets within 100 metre distance from the site on a weekday is required. This survey is to be undertaken when lockdown restrictions are lifted and students are back to campus.*

The on-street parking occupancy surrounding the site has been examined using aerial imagery as detailed in **Section 3.3**.

7.3 Operational Transport Management Plan

- *An OTMP is required. The plan must identify mode share targets for the proposed travel strategies that target a reduction in private vehicle trips. Should the increase in vehicle trips be unacceptable then the plan is to include measures to ensure no net increase in vehicle trips. The plan is to include the provision of a traffic control officer. This could be a staff member allocated the role.*

An Operational Transport Management Plan will be provided including the details requested.

7.4 Modified Architectural Plans

- *Modified architectural plans are required showing:*
 - *Three (3) on-site motorcycle parking spaces.*
 - *94 bicycle parking spaces on site for students and staff.*
 - *Proposed pick up and drop off on-street spaces*

Amended plans will be provided indicating the motorcycle and bicycle parking. The proposed pick-up and drop-off spaces are discussed in **Section 2.3**.

Please contact Mr Tom Steal on 9521 7199 should you require further information or assistance.

Yours faithfully

McLaren Traffic Engineering



Tom Steal

Senior Traffic Engineer

BE Civil AMAITPM MIEAust

RMS Accredited Level 2 Road Safety Auditor



**ANNEXURE A: SIDRA RESULTS
(6 SHEETS)**

MOVEMENT SUMMARY

Site: 101 [PM - FU - Murriverie Road / Mitchell Street (Site Folder: General)]

Stop sign controlled intersection of Murriverie Road and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|-----------------|--------------|-----------------|----------|-----------|-------------|------------------|-------------------|------------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h] | [HV] veh/h | [Total veh/h] | [HV] % | v/c | sec | | [Veh. veh] | [Dist] m | | | | km/h |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 39 | 0 | 42 | 0.0 | 0.035 | 8.0 | LOS A | 0.0 | 0.0 | 0.00 | 1.00 | 0.00 | 51.8 |
| 3 | R2 | 160 | 14 | 169 | 8.7 | 0.331 | 14.6 | LOS B | 1.6 | 12.2 | 0.61 | 1.05 | 0.72 | 48.0 |
| Approach | | 200 | 14 | 210 | 7.0 | 0.331 | 13.3 | LOS A | 1.6 | 12.2 | 0.49 | 1.04 | 0.58 | 48.7 |
| East: Murriverie Road (E) | | | | | | | | | | | | | | |
| 4 | L2 | 195 | 9 | 206 | 4.6 | 0.114 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.57 | 0.00 | 53.4 |
| 5 | T1 | 111 | 5 | 117 | 4.5 | 0.062 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 60.0 |
| Approach | | 306 | 14 | 323 | 4.6 | 0.114 | 3.6 | NA | 0.0 | 0.0 | 0.00 | 0.37 | 0.00 | 55.6 |
| West: Murriverie Road (W) | | | | | | | | | | | | | | |
| 11 | T1 | 141 | 4 | 148 | 2.8 | 0.070 | 0.2 | LOS A | 0.3 | 2.3 | 0.04 | 0.05 | 0.04 | 59.4 |
| 12 | R2 | 58 | 6 | 61 | 10.4 | 0.070 | 7.3 | LOS A | 0.3 | 2.3 | 0.41 | 0.50 | 0.41 | 52.8 |
| Approach | | 199 | 10 | 209 | 5.0 | 0.070 | 2.2 | NA | 0.3 | 2.3 | 0.15 | 0.18 | 0.15 | 57.3 |
| All Vehicles | | 705 | 38 | 742 | 5.4 | 0.331 | 6.0 | NA | 1.6 | 12.2 | 0.18 | 0.50 | 0.21 | 53.9 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.


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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Old South Head Road / Curlewis Street / O'Sullivan Road / Birriga Road (Site Folder: General)]**

 **Network: N101 [PM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Signal Controlled intersection of Old South Head Road, Curlewis Street, O'Sullivan Road and Birriga Road

Existing Conditions

AM Peak Hour Period

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 100 seconds (Network Optimum Cycle Time - Minimum Delay)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|--------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| | | | | | | v/c | sec | | | | | | | km/h |
| South: Old South Head Road (S) | | | | | | | | | | | | | | |
| 1b | L3 | 15 | 0.0 | 15 | 0.0 | 0.009 | 6.8 | LOS A | 0.0 | 0.0 | 0.00 | 0.58 | 0.00 | 54.8 |
| 1 | L2 | 42 | 5.0 | 42 | 5.0 | 0.884 | 54.4 | LOS D | 15.8 | 113.7 | 1.00 | 1.03 | 1.23 | 33.2 |
| 2 | T1 | 638 | 3.0 | 638 | 3.0 | *0.884 | 49.6 | LOS D | 16.4 | 116.3 | 1.00 | 1.02 | 1.23 | 33.0 |
| 3 | R2 | 296 | 1.1 | 296 | 1.1 | 0.884 | 54.6 | LOS D | 16.4 | 116.3 | 1.00 | 1.00 | 1.23 | 22.4 |
| Approach | | 991 | 2.4 | 991 | 2.4 | 0.884 | 50.7 | LOS D | 16.4 | 116.3 | 0.99 | 1.01 | 1.21 | 30.6 |
| East: Curlewis Street | | | | | | | | | | | | | | |
| 4 | L2 | 499 | 5.1 | 499 | 5.1 | 0.480 | 18.6 | LOS B | 8.6 | 62.8 | 0.63 | 0.77 | 0.63 | 39.2 |
| 4a | L1 | 91 | 1.2 | 91 | 1.2 | 0.864 | 58.7 | LOS E | 7.5 | 53.5 | 1.00 | 1.00 | 1.33 | 24.6 |
| 5 | T1 | 135 | 1.6 | 135 | 1.6 | 0.864 | 54.5 | LOS D | 7.5 | 53.5 | 1.00 | 1.00 | 1.33 | 24.7 |
| 6 | R2 | 62 | 1.7 | 62 | 1.7 | 0.746 | 63.3 | LOS E | 2.1 | 14.6 | 1.00 | 0.83 | 1.28 | 22.4 |
| Approach | | 786 | 3.7 | 786 | 3.7 | 0.864 | 32.9 | LOS C | 8.6 | 62.8 | 0.76 | 0.84 | 0.88 | 31.9 |
| North: Old South Head Road (N) | | | | | | | | | | | | | | |
| 7 | L2 | 46 | 2.3 | 46 | 2.3 | 0.043 | 12.3 | LOS A | 0.5 | 3.5 | 0.43 | 0.64 | 0.43 | 43.1 |
| 8 | T1 | 786 | 3.9 | 786 | 3.9 | *0.891 | 48.2 | LOS D | 17.2 | 124.8 | 1.00 | 1.06 | 1.26 | 33.3 |
| 9a | R1 | 122 | 6.0 | 122 | 6.0 | 0.891 | 52.6 | LOS D | 17.2 | 124.8 | 1.00 | 1.06 | 1.26 | 32.9 |
| 9 | R2 | 61 | 3.4 | 61 | 3.4 | 0.891 | 54.0 | LOS D | 17.2 | 124.8 | 1.00 | 1.06 | 1.26 | 32.4 |
| Approach | | 1016 | 4.0 | 1016 | 4.0 | 0.891 | 47.5 | LOS D | 17.2 | 124.8 | 0.97 | 1.04 | 1.22 | 33.4 |
| West: O'Sullivan Road (W) | | | | | | | | | | | | | | |
| 10 | L2 | 74 | 2.9 | 74 | 2.9 | 0.352 | 46.7 | LOS D | 3.8 | 27.5 | 0.93 | 0.76 | 0.93 | 34.7 |
| 11 | T1 | 185 | 1.7 | 185 | 1.7 | 0.881 | 51.4 | LOS D | 5.5 | 39.1 | 0.97 | 0.90 | 1.24 | 22.2 |
| 12 | R2 | 45 | 4.7 | 45 | 4.7 | 0.881 | 64.0 | LOS E | 5.5 | 39.1 | 1.00 | 0.99 | 1.42 | 29.9 |
| 12b | R3 | 1 | 0.0 | 1 | 0.0 | *0.881 | 64.6 | LOS E | 5.5 | 39.1 | 1.00 | 0.99 | 1.42 | 29.8 |
| Approach | | 305 | 2.4 | 305 | 2.4 | 0.881 | 52.1 | LOS D | 5.5 | 39.1 | 0.97 | 0.88 | 1.19 | 27.0 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | | | | |
| 30b | L3 | 9 | 0.0 | 9 | 0.0 | 0.483 | 51.0 | LOS D | 4.2 | 30.9 | 0.97 | 0.79 | 0.97 | 32.9 |
| 30a | L1 | 208 | 5.1 | 208 | 5.1 | 0.882 | 54.2 | LOS D | 6.8 | 49.0 | 0.98 | 0.87 | 1.12 | 31.6 |
| 32a | R1 | 126 | 3.3 | 126 | 3.3 | *0.882 | 62.2 | LOS E | 6.8 | 49.0 | 1.00 | 1.03 | 1.41 | 20.0 |
| Approach | | 344 | 4.3 | 344 | 4.3 | 0.882 | 57.1 | LOS E | 6.8 | 49.0 | 0.99 | 0.92 | 1.22 | 27.9 |
| All Vehicles | | 3442 | 3.4 | 3442 | 3.4 | 0.891 | 46.4 | LOS D | 17.2 | 124.8 | 0.93 | 0.96 | 1.14 | 31.1 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

| Pedestrian Movement Performance | | | | | | | | | | | |
|---------------------------------|----------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|-------------|--------------|-------------|
| Mov ID | Crossing | Dem. Flow | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Travel Time | Travel Dist. | Aver. Speed |
| | | ped/h | sec | | [Ped ped | Dist] m | | | sec | m | m/sec |
| South: Old South Head Road (S) | | | | | | | | | | | |
| P1 | Full | 19 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 222.5 | 214.0 | 0.96 |
| East: Curlewis Street | | | | | | | | | | | |
| P2 | Full | 14 | 44.2 | LOS E | 0.0 | 0.0 | 0.94 | 0.94 | 213.0 | 219.4 | 1.03 |
| North: Old South Head Road (N) | | | | | | | | | | | |
| P3 | Full | 19 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 210.5 | 216.2 | 1.03 |
| SouthWest: Birriga Road (SW) | | | | | | | | | | | |
| P8 | Full | 39 | 44.3 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 208.0 | 212.9 | 1.02 |
| All Pedestrians | | 91 | 44.2 | LOS E | 0.1 | 0.1 | 0.94 | 0.94 | 212.3 | 214.8 | 1.01 |

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.


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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Curlewis St / Wellington St (Site Folder: General)]**

 **Network: N101 [PM FU (Network Folder: Old Sth Head Road and Roundabout)]**

Roundabout controlled intersection of Curlewis Street and Wellington Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: Wellington Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 49 | 0.0 | 49 | 0.0 | 0.300 | 11.3 | LOS A | 0.8 | 5.4 | 0.81 | 0.88 | 0.81 | 43.7 |
| 2 | T1 | 104 | 4.0 | 104 | 4.0 | 0.300 | 11.2 | LOS A | 0.8 | 5.4 | 0.81 | 0.88 | 0.81 | 49.4 |
| 3 | R2 | 21 | 0.0 | 21 | 0.0 | 0.300 | 13.7 | LOS A | 0.8 | 5.4 | 0.81 | 0.88 | 0.81 | 49.2 |
| Approach | | 175 | 2.4 | 175 | 2.4 | 0.300 | 11.5 | LOS A | 0.8 | 5.4 | 0.81 | 0.88 | 0.81 | 48.3 |
| East: Curlewis Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 172 | 9.2 | 172 | 9.2 | 0.280 | 9.3 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 45.9 |
| 6 | R2 | 9 | 0.0 | 9 | 0.0 | 0.280 | 11.6 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 50.6 |
| 6u | U | 5 | 0.0 | 5 | 0.0 | 0.280 | 13.0 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 51.0 |
| Approach | | 186 | 8.5 | 186 | 8.5 | 0.280 | 9.6 | LOS A | 0.7 | 5.2 | 0.73 | 0.80 | 0.73 | 46.6 |
| North: Wellington Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 12 | 0.0 | 12 | 0.0 | 0.526 | 7.4 | LOS A | 2.0 | 14.0 | 0.62 | 0.67 | 0.62 | 50.2 |
| 9 | R2 | 542 | 2.9 | 542 | 2.9 | 0.526 | 9.8 | LOS A | 2.0 | 14.0 | 0.62 | 0.67 | 0.62 | 45.7 |
| 9u | U | 1 | 0.0 | 1 | 0.0 | 0.526 | 11.2 | LOS A | 2.0 | 14.0 | 0.62 | 0.67 | 0.62 | 50.8 |
| Approach | | 555 | 2.8 | 555 | 2.8 | 0.526 | 9.8 | LOS A | 2.0 | 14.0 | 0.62 | 0.67 | 0.62 | 45.9 |
| West: Curlewis Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 1 | 0.0 | 1 | 0.0 | 0.198 | 6.1 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 49.1 |
| 11 | T1 | 193 | 2.2 | 193 | 2.2 | 0.198 | 5.8 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 50.0 |
| 12u | U | 17 | 0.0 | 17 | 0.0 | 0.198 | 9.8 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 34.9 |
| Approach | | 211 | 2.0 | 211 | 2.0 | 0.198 | 6.1 | LOS A | 0.4 | 2.9 | 0.27 | 0.55 | 0.27 | 49.6 |
| All Vehicles | | 1126 | 3.6 | 1126 | 3.6 | 0.526 | 9.3 | LOS A | 2.0 | 14.0 | 0.61 | 0.70 | 0.61 | 47.2 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Blair Street / Glenayr Avenue (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Stop sign controlled intersection of Blair Street and Glenayr Avenue

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Stop (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 5 | T1 | 496 | 4.0 | 496 | 4.0 | 0.273 | 0.2 | LOS A | 0.1 | 0.5 | 0.04 | 0.01 | 0.05 | 59.4 |
| 6 | R2 | 11 | 0.0 | 11 | 0.0 | 0.273 | 9.7 | LOS A | 0.1 | 0.5 | 0.04 | 0.01 | 0.05 | 55.7 |
| Approach | | 507 | 3.9 | 507 | 3.9 | 0.273 | 0.4 | NA | 0.1 | 0.5 | 0.04 | 0.01 | 0.05 | 59.3 |
| North: Glenayr Avenue (N) | | | | | | | | | | | | | | |
| 7 | L2 | 16 | 0.0 | 16 | 0.0 | 0.452 | 14.0 | LOS A | 0.7 | 5.1 | 0.83 | 1.09 | 1.15 | 35.9 |
| 9 | R2 | 119 | 1.8 | 119 | 1.8 | 0.452 | 23.3 | LOS B | 0.7 | 5.1 | 0.83 | 1.09 | 1.15 | 43.5 |
| Approach | | 135 | 1.6 | 135 | 1.6 | 0.452 | 22.2 | LOS B | 0.7 | 5.1 | 0.83 | 1.09 | 1.15 | 42.9 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 136 | 1.6 | 136 | 1.6 | 0.345 | 5.7 | LOS A | 0.0 | 0.0 | 0.00 | 0.12 | 0.00 | 57.0 |
| 11 | T1 | 519 | 3.0 | 519 | 3.0 | 0.345 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.12 | 0.00 | 57.6 |
| Approach | | 655 | 2.7 | 655 | 2.7 | 0.345 | 1.3 | NA | 0.0 | 0.0 | 0.00 | 0.12 | 0.00 | 57.4 |
| All Vehicles | | 1297 | 3.1 | 1297 | 3.1 | 0.452 | 3.1 | NA | 0.7 | 5.1 | 0.10 | 0.18 | 0.14 | 55.2 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

 **Site: 101 [PM - FU - Blair Street / Mitchell Street (Site Folder: General)]**

 **Network: N102 [PM Blair Corridor (Network Folder: Blair Corridor)]**

Roundabout controlled intersection of Blair Street and Mitchell Street

Existing Conditions

PM Peak Hour Period

Site Category: (None)

Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-----------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | DEMAND FLOWS | | ARRIVAL FLOWS | | Deg. Satn | Aver. Delay | Level of Service | AVERAGE BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | v/c | sec | | [Veh. veh | Dist] m | | | | km/h |
| South: Mitchell Street (S) | | | | | | | | | | | | | | |
| 1 | L2 | 41 | 5.1 | 41 | 5.1 | 0.129 | 7.7 | LOS A | 0.2 | 1.8 | 0.63 | 0.70 | 0.63 | 47.4 |
| 2 | T1 | 36 | 0.0 | 36 | 0.0 | 0.129 | 7.8 | LOS A | 0.2 | 1.8 | 0.63 | 0.70 | 0.63 | 52.6 |
| 3 | R2 | 11 | 0.0 | 11 | 0.0 | 0.129 | 11.3 | LOS A | 0.2 | 1.8 | 0.63 | 0.70 | 0.63 | 47.4 |
| 3u | U | 1 | 0.0 | 1 | 0.0 | 0.129 | 13.0 | LOS A | 0.2 | 1.8 | 0.63 | 0.70 | 0.63 | 52.9 |
| Approach | | 88 | 2.4 | 88 | 2.4 | 0.129 | 8.3 | LOS A | 0.2 | 1.8 | 0.63 | 0.70 | 0.63 | 50.3 |
| East: Blair Street (E) | | | | | | | | | | | | | | |
| 4 | L2 | 9 | 0.0 | 9 | 0.0 | 0.445 | 3.8 | LOS A | 1.0 | 6.9 | 0.63 | 0.68 | 0.63 | 49.9 |
| 5 | T1 | 283 | 2.2 | 283 | 2.2 | 0.445 | 4.5 | LOS A | 1.0 | 6.9 | 0.63 | 0.68 | 0.63 | 18.3 |
| 6 | R2 | 49 | 2.1 | 49 | 2.1 | 0.445 | 7.3 | LOS A | 1.0 | 6.9 | 0.63 | 0.68 | 0.63 | 51.0 |
| 6u | U | 1 | 0.0 | 1 | 0.0 | 0.445 | 9.0 | LOS A | 1.0 | 6.9 | 0.63 | 0.68 | 0.63 | 18.3 |
| Approach | | 343 | 2.1 | 343 | 2.1 | 0.445 | 4.9 | LOS A | 1.0 | 6.9 | 0.63 | 0.68 | 0.63 | 35.4 |
| North: Mitchell Street (N) | | | | | | | | | | | | | | |
| 7 | L2 | 29 | 3.6 | 29 | 3.6 | 0.401 | 6.9 | LOS A | 0.9 | 6.3 | 0.60 | 0.73 | 0.60 | 46.4 |
| 8 | T1 | 106 | 3.0 | 106 | 3.0 | 0.401 | 7.1 | LOS A | 0.9 | 6.3 | 0.60 | 0.73 | 0.60 | 51.8 |
| 9 | R2 | 174 | 9.7 | 174 | 9.7 | 0.401 | 10.8 | LOS A | 0.9 | 6.3 | 0.60 | 0.73 | 0.60 | 46.4 |
| 9u | U | 4 | 50.0 | 4 | 50.0 | 0.401 | 14.0 | LOS A | 0.9 | 6.3 | 0.60 | 0.73 | 0.60 | 50.2 |
| Approach | | 313 | 7.4 | 313 | 7.4 | 0.401 | 9.2 | LOS A | 0.9 | 6.3 | 0.60 | 0.73 | 0.60 | 49.0 |
| West: Blair Street (W) | | | | | | | | | | | | | | |
| 10 | L2 | 197 | 4.8 | 197 | 4.8 | 0.504 | 3.0 | LOS A | 1.2 | 8.7 | 0.36 | 0.51 | 0.36 | 50.8 |
| 11 | T1 | 277 | 2.3 | 277 | 2.3 | 0.504 | 3.5 | LOS A | 1.2 | 8.7 | 0.36 | 0.51 | 0.36 | 26.9 |
| 12 | R2 | 36 | 0.0 | 36 | 0.0 | 0.504 | 6.5 | LOS A | 1.2 | 8.7 | 0.36 | 0.51 | 0.36 | 52.4 |
| 12u | U | 27 | 0.0 | 27 | 0.0 | 0.504 | 8.3 | LOS A | 1.2 | 8.7 | 0.36 | 0.51 | 0.36 | 26.9 |
| Approach | | 537 | 2.9 | 537 | 2.9 | 0.504 | 3.8 | LOS A | 1.2 | 8.7 | 0.36 | 0.51 | 0.36 | 46.2 |
| All Vehicles | | 1282 | 3.8 | 1282 | 3.8 | 0.504 | 5.7 | LOS A | 1.2 | 8.7 | 0.51 | 0.63 | 0.51 | 46.7 |

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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**ANNEXURE B: PROPOSED ON-STREET PARKING SIGNAGE
(1 SHEET)**



MCLAREN TRAFFIC ENGINEERING
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E : admin@mcclarentraffic.com.au

CLIENT / Project:
Reddam House

Project Address:

Notes:
CONCEPT PLAN ONLY.
NOT FOR CONSTRUCTION.

Tested Using:
*AutoTURN 10
*TMCAD 2010

Drawing Title:
Proposed On-Street Parking Restrictions

Project No: **Drawing No:**

| Revision | Date | Details |
|----------|----------|------------------|
| A | 01/10/21 | |
| B | 07/10/21 | Dimensions Added |
| | | |
| | | |
| | | |

